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ABSTRACT

Herein is discussed the individual human being, including his sense of competence, the relationship of authoritarianism to his receptivity to change, his values, his needs, his past experience, his feelings of threat, the effects of fear on him, his tendency to distort information, his attitudinal changes, and his information seeking. The phenomenon of groups, including participation in groups, group cohesiveness, group resistance, the effect of conformity and social support on the behavior of individuals in the group, social integration and similarity of background, the effect of status, community of norms, and the effect of leadership in the group is also discussed. The phenomenon of organizations, including those forces that tend to restrain change within them and those forces which tend to support change, is presented. Also included are aspects of an innovation in general terms, including its intrinsic characteristics, various sizes, and various kinds. The intrinsic characteristics and roles of linking agents, such as conveyors, consultants, trainers, leaders, innovators, defenders, knowledge builders, practitioners, and users, are discussed. (Author)

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Variables of Institutional Change at the Elementary and Secondary School Levels

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CHAPTER I

INTRODUCTION

The traditional role that educators have played in preparing the youth of our nation for their future has undergone significant modification as a result of the increasing difficulty of predicting with any degree of certainty what life will be like when present student groups become adults. For example, serious questions have been raised about the prevailing educational emphasis upon the development of specific skills that enable students to specialize in particular jobs. We already know that most students now at the elementary level will go through an average of five major job changes during their careers. These future job changes will often require both the acquisition of new knowledge and retraining in skill areas that currently are non-existent; moreover, even in those cases where an individual is successful in acquiring new knowledge and skills, any failure or inability on his part to continue learning within his chosen area of competence will render him obsolete within a five year period. Thus, instead of preparing their students for existing roles, many educators have begun to emphasize the development of those skills that appear to be associated with the learner's ability to adapt to an ever changing environment.

As educators have begun to restructure their educational processes in light of these and other concerns for the future of their students, they have discovered that relatively minor changes within existing elementary and secondary schools often become exceedingly complex and difficult undertaking, accompanied by unanticipated complications for even the

most sophisticated innovators. And as these often bruised and battered innovators contemplate their few successes in bringing about significant change within our existing educational institutions, they sometimes wonder how students will ever learn to live with constant major changes in their lives when today's adults cannot accept even minor changes.

One of the difficulties experienced by educators who have attempted to bring about change in elementary and secondary schools is related to the prevailing information gap between practitioner and the researcher in education. For the most part, the educational practitioners who are deeply involved in changing schools do not have access to the information that has been collected by researchers who study change. As a result, when educational innovators do pause momentarily to reflect upon why a particular strategy did or did not work in a given school district, they typically have very little information available that assists them in placing their local successes and failures within a broader perspective. Where information is available that might be of use to the educational practitioner, it is typically available only in a communication format that frustrates and alienates the practitioner (e.g., articles written for researchers that focus primarily upon data collection procedures).

Perhaps one approach toward the greater use of research information by the practitioner would be the preparation of a narrative summarization of research results that have relevance for him.

This document is an attempt to compile on those variables of institutional change at the elementary and secondary school levels that appear to be of use to the educational practitioner. It is the result of a comprehensive search of the literature related to the following varia-

bles: (1) the individual innovator, (2) interpersonal relationships between that innovator, his colleagues, and others, (3) the organizational context within which the change takes place, (4) the innovation itself, and (5) approaches and characteristics of the various linking agents who attempt to support the efforts of the educational innovator.

By examining those forces from both within and outside of the school system that act as restraining or supportive variables for change, it is hoped that the practitioner will gain a better idea of the various approaches that might be utilized to effectively influence or manipulate these change variables. Since relatively little research into change has been conducted exclusively in the area of education, this study has also summarized a wide variety of research on change conducted in other areas (e.g., agriculture, medicine, sociology, etc.). At the same time, every attempt has been made to relate this information directly to the real world of education by utilizing examples within the field of education and by modifying terminology so that it will be comfortable and more readable to the educator.

There are several assumptions that the reader should keep in mind as he proceeds through this document. Some of these assumptions have been derived from the task itself, while some of them have been drawn from the literature reviewed as a part of the task. For example, it is assumed that continual change has become an integral part of the world of education. I have deliberately avoided making the value judgment that all changes of necessity are good, but, at the same time, it does seem that the individuals that are involved in bringing about change will be more effective in their undertaking if they understand the variables

that either support or hinder change.

Another assumption underlying this document is that the researcher who is concerned about this topic, will be much more interested in obtaining his information from the original sources. Thus, a deliberate practitioner orientation has been selected since one of the major goals of this paper is to assist in transferring and interpreting research results on change so that they might be more effectively utilized by practitioners. As a result, an attempt has been made to organize the document for readability and usability by practitioner-oriented individuals.

Finally, it is assumed that breaking research findings into a series of discrete elements which act as supportive or restraining variables for educational change, will not only help practitioners begin to better understand similarities and differences among educational innovations, but such understanding will also enable those practitioners to begin making more rational decisions with regard to implementation strategies.

This approach has led to a number of problems. For example, since one of the major difficulties in reaching practitioners with research has traditionally been the language usage of researchers, the author was faced with the task of occasionally interpreting, simplifying, and translating the language used by researchers so that it would make sense to practitioners. If this approach seems rather presumptuous to the researchers who, I am sure, have labored long and with great difficulty over the selection of their language, then I must extend to them my apologies. At the same time, since I am convinced that one of the major reasons for the lack of research utilization by the practitioners is the present state of

language confusion among the various researchers, I believe that language simplification in this case is more than justifiable.

Within each chapter, the content will focus upon supportive and restraining variables related to that particular chapter topic and, in addition will comment on the methods, strategies, and tactics utilized to manipulate or influence those variables. Each chapter has been organized around a specific topic that has been selected primarily because of its appeal for practitioners. At the same time, it would be virtually impossible to pretend that these discrete chapters and the topics contained therein did not overlap, and since the document has been designed so that the reader might utilize individual sections or topics without consulting the remainder of the document, an attempt has been made to treat each of the chapter topics as fully as possible even if this does result in some overlapping from chapter to chapter. The general headings are as follows: The Individual, The Group, The Organization, The Innovation, Change Agent Roles, and Bibliography.

CHAPTER II

THE INDIVIDUAL

Underlying our entire understanding of institutional change is an implicit assumption that individuals, the human bits and pieces of an organization, form one of the key variables in bringing about organizational change. Since researchers occasionally lose insight of the fact that people bring what little life there is into organizations, it seems entirely appropriate that we begin this analysis of institutional change at the elementary and secondary school level with an examination of those factors within people that make them more (or less) susceptible to change.

Since the human organism is an extremely complex entity, no pretense has been made that this overview is comprehensive with regard to all aspects of the individual. At the same time, a selected overview of those variables within the individual that seem most important when considering change within that individual does seem to have some relevance for this study. These variables include both psychological characteristics that are quite difficult to change (e.g., sense of competence, personality factors, values and needs) and, in addition, a number of other human characteristics that seem to be more susceptible to the types of situational and inter-personal influences that can bring about change (e.g., sense of threat, tendency of individuals to compare themselves to others, effects of fear, self-fulfilling prophesies, the processes of attitude change, motivational basis of attitudes, and the use of influence in bringing about change in attitudes).

In reading this chapter, it is especially crucial that the reader keep in mind the interrelatedness between the change variables that are discussed in this chapter and those discussed in other parts of this document. Although it is difficult to deal with discrete topics on any basis other than one at a time, in reality none of these variables function independently even though they are occasionally treated in research as if they were capable of such independent functioning. As the reader proceeds through this document, and occasionally becomes overwhelmed with the seemingly endless stream of heavily researched areas which are being portrayed as variables that can be influential in supporting or restraining change, it is important that a gradual image of interrelatedness and interdependence emerges. Although this document must point out discrete variables within the individual, the group, the organizational structure, the innovation itself and the literature on change agents as a means for helping the reader understand the forces of change at the elementary and secondary level, successful accomplishment of the task is based upon the reader's ability to effectively interrelate in some synergistic manner these various parts into a comprehensive understanding of the process of change. Unfortunately, the ability to mentally structure a larger coherence out of discrete sub-units of information is extremely difficult, (at least it is a difficult task for the writer, and my personal ego needs will not allow me to admit that such a task will be any easier for the reader). When such a synthesizing of information does occur in my mind, it is usually because I have internalized the bits and pieces of information to such an extent that I no longer consciously am aware of their discrete nature.

1. Sense of Competence and Self-Esteem

Robert White (1963) defines sense of competence as the "cumulative result of the whole history of transactions with the environment.... In the mature adult the sense of competence may become well organized and differentiated with respect to different spheres of activity. We learn what we can and cannot do, and we may be satisfied to concentrate on the former."(p. 39). Thus, an individual may be receptive or unreceptive to change on the basis of his sense of competence - whether or not he believes that he can effectively carry out the tasks involved in whatever changes are suggested. In addition, there is some indication that a relatively high sense of competence within a number of areas will enable an individual to try on new areas where he has not as yet demonstrated to himself that he does have specific competencies (McClelland, 1965). It is this willingness to venture out into areas of uncertainty that characterizes the individuals that are most commonly thought of an innovators within school systems.

Self-esteem, a characteristic that is closely related to the individual's sense of competence, may be described as the extent to which an individual values himself. Allport (1943) has summarized a great deal of evidence on the important role of self-esteem in shaping a person's behavior. However, this personal sense of self-esteem is also greatly influenced by feedback that the individual receives (and chooses to listen to) from other persons (Rogers, 1961; White, 1963). Several authors have pointed out the relationship between self-esteem and a willingness to innovate. According to Chesler (1967), teachers with a fear of failure are more resistant to new practices while Lippitt, et al. (1958) sug-

gest that those individuals who are unwilling to admit personal weaknesses also tend to resist change. Individuals who have developed perceptions of personal impotence and do not trust their own judgment have also been found to be resistant to innovation (Watson, 1967).

At the same time that low self-esteem appears to be related to a certain amount of resistance to change, the individual with a low self-esteem tends to rely much more heavily upon the judgment and recommendations of others within his peer group (Trow, et. al., 1950; Janis, 1963). This dependency upon others can result in an individual whose need for conformity is extremely high, and if such an individual were a member of a group that decided to become involved in the adoption of specific innovations, it is quite likely that the person with a low self-esteem would conform to a group decision. At the same time, if the peer group decided not to adopt a particular innovation, the individual in question would also be influenced in that direction.

2. Authoritarianism and Receptivity to Change

In 1950, Adorno outlined a theory that dealt with the authoritarian personality, which he claimed was the result of severe early childhood discipline and typically included the following characteristics: strong prejudice and aggression toward outsiders, a tendency to accept dictatorial leadership directives, and firm rejection of suggested changes from "outside sources". Since 1950, a great deal of research has been conducted on various aspects of authoritarianism.

Among the research findings since then are the following (Rokeach, 1968): (1) individuals with authoritarian personality types have less

tolerance or feelings of ambiguity than other individuals, (2) their selected perception enables them to block out information that they cannot reconcile with their original interpretation of a situation, and (3) they are able to maintain their original interpretations of a situation for a longer period of time than nonauthoritarian types.

Rokeach (1960) has examined the extent to which a person can be classified as open minded or close minded and has developed a dogmatism scale for measuring relative open and closed mindedness. However, Rokeach has also pointed out that "we must avoid associating the open mind with change and the closed mind with non-change" (p. 337).

> .....Both change and its absence may result from the same underlying motive. Two persons may both change a given attitude, but for opposing reasons: in the one it may represent a "party line" change in conformity to authority; in the other it may represent a more "genuine" change based on a deeper appreciation, or understanding or maturity. Conversely, two persons may both refuse to change a given attitude: in one it may represent rigidity, and in the other firmness or stability. (Kemp, 1960, pp. 336-337).

Nevertheless, in a study on teacher receptivity to change, Bridges and Reynolds (1968) examined the effect of the teachers belief system on receptivity to the trial of innovations. They concluded that "with a somewhat large, heterogenous sample, dogmatism was systematically related to teacher receptivity to change in a variety of community and organizational settings. The teachers who had closed belief systems were less receptive to trying new educational practices then teachers who had open belief systems." (p. 55). Bridges and Reynolds findings have been confirmed by both Peck (1969) and Stephenson (1971) in two separate but highly innovative school settings.

3. Values

One of the major motivational forces within an individuals psychological structure are his values. Values are an individual's long term deeply held beliefs about the various significant factors in his world. Katz and Stotland (1959) have referred to values as an interrelated set of attitudes dealing with specific objects in an individual's life space. Although the research on values is broad, unfortunately it is also quite difficult to relate specifically to the question of change in education under discussion here. It does appear, however, that where a particular innovation is perceived of as supporting or conflicting with an individual's values, then those values tend to be influential factors in the individuals decision to either accept or reject the innovation. Ray Helsel (1971) pointed out that personality factors may be important determinants of educators ideological orientations toward pupil control; in a random sample of 1,000 educators, he found a positive relationship between traditionalism in educators value orientation and custodialism in their pupil control ideology. Havelock (1964) has identified the following six approaches that should be taken into consideration when dealing with values:

(1) Put emphasis on those values which are shared by the source and the receiver. In doing so, we must be careful not to assume because the receiver agrees with you he will make the desired change. Behavior is determined by other factors as well as values. The dope addict may agree on the terrible effects of narcotics but he still may be unable to control his use of them.

(2) By-pass value issues. The problem here is that if you are unsuccessful you may increase suspiciousness and distruct.

(3) Negotiate. Like any interpersonal differences, value issues, once they are known, can be negotiated.

(4) Explore the value issues. It might be that the mere recognition by the receiver that his values are considered and respected will help create an atmosphere of trust and acceptance.

(5) Find key values and appeal to them.

(6) Respect value barriers. Values are important elements of our life. Before we charge headlong over a value barrier, we should ask ourselves how it got there. (p. 174).

Willower (1967) found that levels of dogmatism were also associated with pupil control ideology in that closed minded educators were more custodial in their pupil control ideology then were their open minded colleagues. The findings of both Willower and Helsel seem to reinforce the idea that certain types of changes within education (e.g., the use of humanistic curricula materials and the shift from a teacher directed to pupil directed control of student behavior) will be more effectively accomplished by teachers and administrators who exhibit open mindedness and emergent value structures as opposed to their colleagues who exhibit closed mindedness and traditional value structures.

Lupin (1965) discovered that a significant relationship existed between the organizational climate of a school and the value structure of individuals within that school; the openness of a school climate was positively related to emergent value systems. Finally, Appleberry and Hoy have also discovered evidence that relatively "open" school climate also were more humanistic in their pupil control ideology then schools with relatively greater "closed" climates. Thus, it appears that the individual values which educators bring to their social organization within

schools has a direct influence on the organizational climate of that school and that this organizational climate directly effects the general pupil control orientations of school personnel.

4. Needs

A third major psychological characteristic that significantly influences the individual are his needs. The term need has been used to describe various areas such as the need for a consistent self-image, the need for food, or the need for a certain standard of living. Certain basic needs such as hunger and a consistency of self-image are extremely important while other needs can be regarded as relatively peripheral and less important to the individual's basic psychological makeup (e.g., the need to gain admission to a particular college). Maslow has suggested that a hierarchy of needs exist that range from the basic needs for food, shelter and clothing up through the individual's need for status and achievement, and has also pointed out that higher level needs do not become important to an individual until he has been able to satisfy his lower level needs.

Newcomb (1947) and Marmor, et. al., (1960), have pointed out that changes and innovations that require a modification of one of the more important needs within an individual is likely to be rejected while those innovations that require only modification of peripheral or less important needs are more likely to be accepted. At the same time, if a change or innovation reinforces or is directly related to the fulfillment of an individuals needs, this can lead to ready acceptance of the innovation (Coleman, et. al., 1957). Similarly, when an individual has

needs that are not being met, those needs will be producing internal tensions which tend to lead that individual to seek out changes within his life space that will lead to reduction in those tensions. (Lippitt, et. al., 1958).

Thus, it appears that innovations will be more acceptable to individuals where those innovations fit the psychological needs of the individual adopters (Katz et. al., 1963, and Pelligrin, 1966). Part of the reason for this necessary congruance is the interrelatedness among an individuals personality, needs, attitudes, values. If a particular innovation were to require a change in one of those areas (e.g., need) the likelihood would also be that changes would be required in other interrelated areas. When any part of an individuals equilibrium is unbalanced by a change in his life space, a number of additional changes must of necessity occur for that equilibrium to be re-established.

5. Past Experience

Several authors have outlined the influence of past experience in establishing a predisposition toward change within the individual. For example, if an individual already possesses a great deal of information about a particular topic, there is less likelihood that his opinion on that topic will be susceptible to external influence (Newcomb, et. al., 1965). Furthermore, Birch and Rabompwotz (1951) have pointed out that previous experiences can exert a powerful negative effect on an individuals' ability to become involved in productive problem solving behavior. McGuire (1964) has pointed out that individuals can actually be trained to resist influence in specific areas by forewarning them about future

attempts to persuade them to change their attitudes about specific items.

In the same way that resistance to an innovation can be built up within individuals, past successful experiences with innovations will produce a tendency to accept new innovations and changes which are similar to those that the individual has experienced some success with. Rogers (1962), concluded after his review of the adoption literature that:

> There is no clear cut evidence as to whether or not innovation behavior (i.e., early adoption) is completely consistent. (It was) found that families who adopted one consumer innovation, for example, home air-conditioning, were likely to adopt other consumer innovations. There is less evidence, however, that a farm innovator is also an innovator in political ideology, consumer behavior, or other areas of life.
>
> (But) in any event, it is doubtful whether an individual who is an innovator for one idea is a laggard for another idea. (p. 187).

Rogers concluded that the individuals under study were simply not easily classifiable into the discrete categories that had been developed by social scientists. Although there is some indication that highly educated individuals who have greater faith in modern science are also willing to take risks where others might not, it appears unlikely that even these risk oriented individuals would be likely to accept innovations which would result in pain or a higher level of anxiety for them.

6. Feelings of Threat

Fear, insecurity, anxiety, and feelings of threat are conditions that have been examined rather extensively by a number of researchers. These feelings emerge within an individual if their self-image is questioned (Hyman and Sheatsley, 1947), if required new behavior calls for

unfamiliar elements (Mitchell and Mudd, 1951), if a proposed change should threaten the individuals feelings of status (Willower, 1963), or if an individual already feels secure in his present position and that security is threatened by the possibility of change (Gallaher, 1964).

For the most part the feelings of threat discussed here are brought about by external sources over which the individual has relatively little control and the ambiguity and uncertainty that results from this lack of control tends to increase the individual's anxiety. Festinger (1954), and Schachter (1959) have pointed out that individuals who are uncertain or anxious will attempt to compare themselves with others in an attempt to evaluate their own ability, emotions, and opinions in relationship to those of others. Festinger (1954) refers to this as the social comparison process where individuals seek out others who are undergoing similar reactions, and Schachter (1959) points out that "misery doesn't love just any kind of company, it loves only miserable company". (p. 24).

7. The Affects of Fear

Although a number of writers agree on the effects of fear or anxiety upon the individual's receptivity to change, some question has been raised regarding differential impact of various levels of fear upon receptivity to change. Janis and Feshback (1953) demonstrated that lower levels of fear tended to have an even greater positive influence in changing the individual than extremely higher levels of fear and suggested that perhaps a certain amount of defensiveness emerged on the part of the individual an extremely high fear laden situations. These findings, however, have been contradicted by the findings of Leventhal (1966A, 1966B) who

discovered that higher levels of fear produced the greatest amount of change. McGuire (1966) points out that "at low levels of initial concern, increased fear arousal would enhance attitude change, but, with higher initial concern, further arousal would impede opinion change" (p. 485). As a result, in most situations where an individual already shows some concern over any issue, an increase in fear would not be effective. On the other hand, in most situations where the individual initially was experiencing low concern (or awareness of the problem) extremely high fear arousal would be influential on attitude change. Perhaps what is happening within the individual that renders a great deal of fear ineffective is that beyond a certain threshold the individual's defense mechanisms block out the perceptions of fear (thus avoiding the issue entirely).

Another way of viewing fear is that the individual when faced with an innovation or change may be afraid that if he does accept that change it will be harmful to him personally (Janis and Feshback, 1953). Thus, a school administrator who is relatively secure and effective in his role as autocratic head of his school may reject the use of group decision making (sensitivity training, role playing, T-grouping) approaches to staff involvement because of what he fears may happen to him in the way of personal harm.

Fear is an extremely complicated variable which should be viewed from a standpoint of the individual's behavior both past and present, whether or not the fear directly effects the individual, the type of fear under consideration, its relative intensity for the individual and the situational context within which that fear emerges. It is somewhat

of an over-simplification to attempt to link fear directly to the acceptance or rejection of specific innovations; when viewed in combination with other factors which tend to influence receptivity or rejection of change, fear does appear to be an important variable.

8. Self-Fulfilling Prophecy

Brickman (1963) has reviewed much of the literature on the impact of expectations, and has arrived at the following two generalizations: (1) people who expect to fail are more likely to fail even when they succeed and want to succeed, and (2) if they do perform well, they are more likely to discount the evidence of their success. This is partly the result of an individual's own expectations and partly because other persons that he interacts with tend to develop early expectations about the individual. Brickman also concluded from his literature review that: (1) "people who expect someone else to fail are more likely to induce him to fail even when they intend him to succeed, (2) if the other individual does do well, they are more likely to discount the evidence of his success, and (3) if he does succeed, they are likely to be less attracted to him" (p. 38). Thus, outsiders have expectations for the individual and if their expectations are not fulfilled they, too, tend to dismiss information that does not reinforce their earlier expectations.

Somewhat complicating this tendency to reinforce expectations is the proportionately greater influence that first impressions have upon the development of expectations. (Stark, 1959; Poser, et. al., 1964; Guskin, 1967; and Lippitt, et. al., 1966). In addition to developing specific expectations about another individual, there is a tendency to

reject information that is received at a later time that does not conform to these earlier expectations. This combination of individual expectations and external expectations can prove especially devastating in the classroom where children are labelled early in their school career as being either "slow", "mentally retarded", or problem children. (Robinson and Robinson, 1965). Since many of the children so labelled come from low income Negro families, and since research has overwhelmingly indicated that standard intelligence tests are culturally biased (Pettigrew, 1964) there is a distinct possibility that many students and teachers have unwittingly conspired to unconsciously restrict the growth potential of students within the classroom. Kenneth Clark (1965) states the problem in "The Dark Ghetto" as follows:

> ...Once one organizes an educational system where children are placed in tracks or certain judgments about their ability determine what is done for them or how much they are taught or not taught, the horror is that the result seem to justify the assumptions. The use of intelligence test scores to brand children for life, to determine education based upon tracks and homegenous groupings of children, impose on our public school system an intolerable and democratic social hierarchy, and defeat the initial purposes of public education. They induce and perpetuate the very pathology which they claim to remedy. Children who are treated as if they are uneducatable almost unvariably become uneducatable. This is educational atrophy. It is generally known that if an arm or a leg is bound so that it cannot be used, eventually it becomes unusable. The same is true of intelligence. (p. 128).

Rosenthal writes (1964):

> Some interesting practical questions arise from these considerations. When an experienced physician or psychotherapist tells the neophyte that his patient has a poor or a good prognosis, is the experienced clinician only assessing or is actually 'causing' the poor or good prognosis? When the master teacher tells his apprentice that a pupil appears to be a slow learner, is this prophecy then self-fulfilled? When the employer tells the employee that

> the task cannot be accomplished, has the likelihood of his accomplishment thereby been reduced? More subtlely, might these phenomena occur even if the supervisors never verbalize their beliefs? The data cited suggested that they may . (p. 98).

9. Distortion of Information

As a result of the individuals need for consistency in his own self-image, Rogers (1951) states that individuals will distort the information in order to maintain that consistency. And Festinger (1957) has pointed out the process of information selectivity where an individual will seek out only information that supports the decision that he has already made. Other authors, Sherif and Hoagland, (1961) support this convention that the individual will seek out information closely related to his existing beliefs and distort or reject or ignore information that radically differs from his existing beliefs.

Some question has been raised about the applicability of distortion research to all individuals. Since much of the research seems to focus upon individuals who are very much in need of distorted information in order to maintain their rather tenuous hold upon their self-images as a result of the fact that they are dominated by certain ego defenses, Freedman and Sears (1965) have questioned the applicability of this research to individuals who are not dominated by those ego defenses.

Another significant factor related to this issue of distortion has to do with the timing of new information. Those individuals who have not yet made a decision are much more receptive and open to divergent information then individuals who have already reached a decision. In addition, Zajonc (1960) and Cohen, (1961) have conducted research which

points out that individuals will be receptive to all information that will be of use to them regardless of whether it is contradictory to beliefs already held by those individuals. On the other hand, if new information lacks that immediate applicability and usefulness, the individuals in question are much less likely to be interested in information that contradicts existing beliefs.

10. Processes of Attitude Change

One of the crucial elements within the process of attitude change is the degree to which an individual is able to choose whether or not he makes a particular commitment. If he has some leeway of choice in making a commitment then he must internally justify his decision and it is likely that his efforts to justify his decision will result in a change in attitude. On the other hand if he has no choice in a particular decision, there is little likelihood that his decision will result in an attitude change. (Freedman and Sears, 1965; and Chapanis and Chapanis, 1964).

There is an extensive amount of literature on overcoming resistance, and Janis and Smith (1965) have reviewed this literature and come to the following conclusions:

(1) Role Playing: when exposed to persuasive messages, persons who are required to play a role that entails putting the content of the message in their own words to others would be more influenced then those who are passively exposed (p. 215); these results can probably be explained by the dissonance theory.

(2) Side Attacks: instead of assembling hortatory, polemical, or refutation arguments against widely accepted beliefs, the side attack judiciously selects minor or subsidiary issues on which relative low resistance can be expected. The potential impact of a side attack approach

is enhanced when the "...audience lacks a well organized, tightly articulated attitude structure regarding any given object. When the attitude structure is not highly integrated (as with emotionally charged stereotypes,) audiences must be subtly taught to dissassociate these from the whole; otherwise the piece meal effort is likely to be completety lost". (p. 213)

(3) Preparatory Communications: by utilizing preparatory communications, the communicator can "...sensitize the audience to the implication of an expected event or (can) dampen its emotional and cognitive impact." (p. 217)

(4) Communication Effects In Spite of Resistance: "Even when the audience remains highly suspicious of the source and is strongly motivated to resist being influenced, communications sometimes prove to be surprisingly effective if some degree of exposure can be achieved (as by the use of provocative news releases). Even a despised communicator may exert an influence in the limited sphere of inducing acceptance of allegedly factual statements." (p. 211)

Any attempt to modify attitudes must eventually examine the various motivational bases for attitudes since individual attitudes are simply the means for stressing motivation in achieving specific desired goals. (Carlson, 1956). However, a variety of different attitudes related to the same object may have emerged for entirely different reasons. Thus, teachers' positive or negative attitudes could be the result of a number of different factors. For example, a teacher's positive attitude toward teaching may have been caused by his interest in becoming a competent teacher, his desire to move from a classroom teaching role into an administrative position, or his preference for long summer vacations. Any approach to attitude change would, of necessity, need to take into consideration the particular motivational phase of the individual teacher.

Still unresolved in the literature is the question of the relationship between attitude changes and behavioral changes. D. Katz and Stot-

land (1959) have suggested that attitudes should be categorized as cognitive, affective, and behavioral. Under such an arrangement, an individual might be able to talk about (cognitive) his feelings or his belief that he ought to move toward a particular object (affective) but he still might not actually do it. In this case his actions are not congruent with his feelings and verbal expressions.

11. Social Influence and Attitude Change

Although many of the items included in this section have emphasized the individual and his reaction to a particular attempt to change him, and although this information is useful in understanding the dynamics of an individual's predisposition to accept or be interested in such change, there are equally important factors that are dependent upon the relationship between the change agent and the individual that is doing the changing. In other words, effectiveness in bringing about change may be related to the approach utilized in influencing the individual in question. Kelman (1958, 1961) suggests the existence of three major approaches to the influence process: (1) the manipulation of rewards or punishments, (2) identification (where the person changing identifies very strongly with the source of information), and (3) internalization (where the recipient accepts an attempt to influence him because the information that he is receiving is similar to that contained within his own attitude and belief system).

12. Information Seeking

There are a number of differences in the manner in which individuals seek out new information, and one of the most important distinctions for those seeking to bring about change in schools is the manner in which individuals who are being asked to change go about seeking out new information for a specific area: does the individual rely on his friends and relatives as compared to more impersonal sources or does he rely upon local sources as opposed to non-local sources? Lionberger (1960) has pointed out that "high dependence on relatives and friends as sources of information is usually negatively associated with the adoption of farm practices" (p. 103) at the same time, he found that early adopters of innovation tended to "use such sources as the county agent, colleges of agriculture, and vocational agriculture teachers." (p. 103)

Carlson (1965) also found that innovators tended to use non-local sources for their information while non-innovators tended to rely most heavily upon local sources of information. Coleman, et. al. (1966) reported that early adopting physicians used the following major sources of information: (1) they attend specialist's (as against generalist's) meetings, (2) they read several medical journals (not house organs), (3) they make an appeal to several sources before making a judgment, (4) they tend to visit out of town medical institutions which they may often use as a point of reference for their practice, (5) they reside near the medical school from which they graduated or interned and use its facilities. Late adopters on the other hand attended general (as against specialist's meetings), and read house organs (as against medical journals).

Generally, it seems that early adopters keep closely in touch with new idea generating sources of information and at the same time utilize a greater number of information sources then do non-adopters (Menzel, 1956, and Lionberger, 1960). Thus, the primary difference between early and late adopters appears to be related to their level of exposure to new information.

Another factor in patterns of information seeking behavior has to do with the feelings of the individual seeking information about those who generate it. For the most part, educational practitioners do not consider that the scientific method as of any great significance to their work as practitioners and, consequently, tend to view educational research activities as somewhat "dubious" enterprises (Pellegrin, 1966). Since many researchers also view the implementation of their research findings (i.e., the task of the practitioner) as a "dubious" enterprise, it is little wonder that there is relatively little communication between research and practice.

CHAPTER III

THE GROUP

In Chapter III, we emphasized the different psychological characteristics inherent within the individual that could be regarded as major variables in the change process. It was pointed out that most of these individual characteristics were also greatly susceptible to the influence of other people within the individuals environment. In Chapter III, we will focus our attention upon the relationship between an individual and the other members of the various groups with which the individual interacts. In examining the individual's relationship with other members of his group, it is well to keep in mind the fact that none of these interpersonal variables operate in isolation. Among the variables which will be discussed in this chapter are: (1) the extent to which a group fosters commitment and participation by its members; (2) group cohesiveness; (3) the role of group consensus and rejection; (4) group conformity levels; (5) group integration; (6) the effect of a member's status on other group members; (8) its credibility to others; (9) the legitimacy of a member's role, and (10) the leadership of the group.

In fact, several authors have pointed out that one of the major changes currently faced by educators in restructuring their own roles within schools is the increasing reliance upon the use of interpersonal skills within the process of teaching itself. Jung (1968) has stated this new expectation distinctly as follows:

> Another major change in the introduction of "process" learning as a whole new area of curriculum. Operationally defined competencies are being identified for a growing number of intrapersonal, interpersonal, group and organizational

> processes. Such processes as identifying needs, analyzing constraints, communicating feelings, planning and conducting improvement efforts, kinds of decision making, negotiating, or evaluating one's own growth must become a high priority curriculum in the schools for tomorrow. As these other kinds of changes occur, educators will have to face a more personal kind of change in their school experience. Increased relevance and personalized learning needed in a dynamic world will draw adults, along with students into the explorations of values and deeper sharings of self. The instructor role of teachers in the past did not call for either. The growth facilitating role that innovators are already seeking in their teachers demands both. Most of us have much to learn about effective, appropriate ways to share who we are, why we are that way, what we live, and what we feel. (p. 34, 35)

Jung's expectations are likewise mirrored by Bettleheim (1969):

> Healthy interpersonal relationships, whether between the teacher and student, or between student and student cannot be learned from books. Nor can they be developed by listening to lectures or watching television programs. They can only be learned through a session of increasingly successful interactions with others.

1. Participation

Participation has been one of the major emphases for the past decade in social action programs, and there is research to support the validity of the notion that individuals who feel that they can influence decisions related to their work will be more satisfied with both the tasks required to perform that work and the product that is the result of their efforts. (Lewin, 1952, Festinger, 1963).

Chin and Hadley (1968) have summarized the literature on participation with the following statement:

> A group of persons becomes and remains an effective task team to the extent that all members understand and feel personally committed to help achieve the common objectives. Personal commitment of members is a function of the degree to which they have participated in shaping these objectives and accept them in terms of specific action responsibility. (p. 95)

Although an individual's involvement with others in a decision making group usually leads to a personal commitment to the group's actions, (Anderson and McGuire, 1965) and Pellegrin (1966) have suggested that innovation is more likely to be accepted if the individuals involved in the eventual implementation of that innovation are included in discussions about the proposed changes. A number of other researchers support this concept of involvement in the decision making process. (Gallaher, 1964, and Lin, et. al., 1966).

2. Group Cohesiveness

There is a great deal of research on group cohesiveness that substantiates the influence of the group on those individuals who identify closely with other members of the group. Chin and Hadley (1968) in commenting on the effectiveness of a team of teachers working as a group, and in terms of group cohesiveness, state that:

> The amount that members can contribute and share is effected by the interpersonal climate the team creates. A positive climate results from a blend of members' behaviors including (their): (1) ability to recognize need for maintenance and task functions and the skills to perform these functions, (2) willingness to work to establish norms of openness, trust, and feedback which encourage expression of personal data relevant to the teams operation, and (3) achieving a problem solving rather than conflict mode of confronting and working with data. (p. 95).

Havelock (1964) has pointed out that

> there is a danger that increasing intragroup cohesiveness will adversely effect intergroup permeability. Ideally, cohesiveness should take place between groups (involved in the utilization process), but in practice this can be difficult. The individual will often see more advantage in maintaining cohesiveness with members of his own group and see a danger in alienating colleagues by fraternizing with new members. (p. 134)

3. Group Resistance

It is possible to overcome group resistance to a new innovation under some circumstances even where the group norms initially are opposed to such introduction of innovation. Coch and French, (1952) found that group cohesiveness and group norms could be utilized to obtain individual cooperation in making changes that would ordinarily be resisted, through the use of group discussions about policy and member involvement in decision making. The major factors that seemed to be related to overcoming resistance were: (1) the groups public commitment to the decision, (2) the perceived consensus within the group, (3) the emergence of new norms while maintaining existing group cohesiveness, and (4) a reduction in resistance on the part of group members to outside sources.

Chesler and Barakat (1967) found that teacher participation in decision making lead to a greater sharing of ideas, less alienation, better teaching, and greater receptivity to change.

In reviewing the concept of group resistance, Havelock reached the following conclusions:

(1) in order for innovations to be successfully presented to a group or to individuals who are closely anchored to a group, the norms and cohesiveness of the group must be known.

(2) if the innovation follows a course known to be acceptable to the group, the group will accept innovation if the individual presenting the innovation is himself acceptable or if the innovation is not presented in the context of other unacceptable ideas or innovations.

(3) if an innovation is unacceptable to a group, special care must be taken to prepare the group to make it more susceptible to acceptance. Possible means of preparation include group discussion about the proposed change, and involvement of the individual or group in the development of the ideas, innovation, etc., in the decision to make it available to others, and in the manner in which the

4. Conformity and Social Support

Within a group there are different levels of group acceptance for the various members in the group and the establishment of group norms exerts various levels of pressure on the individuals within that group. For the individual who is experiencing moderate group acceptance, there is a likelihood that he is slightly insecure about his position in a group and some authors have pointed out that this may lead that individual to accept new knowledge or innovations that follow group norms at a higher rate then other members within the group. This conformity to group norms, however, works primarily for visible innovations; when the use of specific innovations are less apparent to other group members, the individual may publicly conform to the group standard as a result of his anxiety about acceptance while at the same time privately disagree with the innovation (Menzel, 1957; Klein, 1967).

Those individuals within the group who experience a very high degree of acceptance on the part of other group members have a tendency to disagree more openly with prevailing group norms (Dittes and Kelley, 1956). Apparently their high acceptance within the group acts as a deterent against group sanction and results in a greater sense of personal security th may lead to greater innovativeness. On the other hand, it may also lead those highly accepted individuals to reject innovations designed by the larger group. At the same time, since the highly accepted group member retains a significant amount of influence over the remainder of the group members, there is a strong likelihood that he will be able to persuade them to compromise the group decision before such a crisis is ever reached.

Where groups have established norms that are important for the indi-

vidual members, innovations which require a great amount of deviance from those important norms are usually less acceptable to group members than innovations which do not conflict with those norms. (Lippitt, 1966). At the same time, individual members of a group are less likely to rely on their own judgment when group consensus approaches unanimity along a different decision making line. (Asch, 1956). There also seems to be a direct relationship between the amount of social support from an individual's peers for a specific kind of innovative behavior and the ultimate likelihood that the innovative behavior will be performed by the individual (Newcomb, 1943).

Although crisis conditions can significantly alter the normal influence of the group and result in acceptance of changes that would usually be rejected, there is some question regarding the long term continuation of the changes after the crisis has passed. (Gardner, 1964; and Michael, 1965).

5. Social Integration and Similarity of Background

There is a tendency for individuals who experience greater social interaction with their colleagues to obtain information from those colleagues on an informal basis and utilize that information in support of their own decision to innovate. This acceptance of innovative roles by the individual is not necessarily a result of direct influence attempts by their colleagues as much as it is a general acceptance of an opinion they value along with a willingness to follow colleague behavior (Coleman, Katz and Menzel, 1966).

One major variable in an individual's willingness to accept influ-

ence from another person is the similarity in attitude, culture and behavior between the accepting individual and the person from which he obtains information. Newcomb, et. al. (1965) has suggested that individuals who have similar attitudes on a number of issues will also have a higher liking for each other and will, as a result, tend to interact more often; and when there are serious disagreements among these individuals, they will exert greater efforts in attempting to resolve those differences.

6. Status

In those cases where status differential between two persons produces a state of anxiety or tension in an individual of lower status, the result is a tendency for the lower status individuals to avoid contact with the higher status individuals. However, not all status differentiations cause anxiety in the lower status individuals. In those cases in which lower status individuals accept the validity of the higher prestige of another person, and especially when information is needed by the lower status person, there is a tendency for the lower status individual to communicate up the status scale. (Menzel, 1957).

One significant factor in these status relationship discussions is the extent to which the upper status person attempts to exert some type of influence or control over the lower status person. If the person in the lower status position is convinced that the attempts to influence him are legitimate, (i.e., a normal part of the hierarchical relationship) then the attempt to influence is likely to be successful. On the other hand, where those attempts to influence are perceived as illegitimate,

the lower status individual is likely to resist the attempts to influence his behavior. (Lazarsfield and Katz, 1955; Menzel, 1957).

7. Community Norms

Community norms and reference groups influence the adoption of innovations partly because of the wide spread acceptance of community norms, and partly as a result of the behavior patterns of community members. In those cases where interaction is limited to the confinces of a particular community, it is less likely that those contacts will lead to the acquisition of the knowledge necessary for the introduction of innovations. In those cases where outside interaction does occur, this interpersonal contact with the outside greatly enhances the information flow into a community and, as a result, the possibility for the introduction of innovation is greatly increased. (Rogers, 1962).

8. Credibility

One extremely important variable in influencing the acceptability of an innovation is the credibility of the source of information about that innovation. In those cases where the source is both believable and reliable, there is a strong tendency for the receiving audience to modify their attitudes toward the innovation. In addition to credibility being based upon past performance, it can be developed as a direct result of the receiver's perceptions of the intentions of the sender. (Caird, 1961). Once credibility in a particular person has been established, however, it is not necessarily true that there will be a transfer of that credibility from past situations to situations in which he has not as yet established

his competence. Thus, an individual who has established his credibility as a teacher may be unsuccessful in maintaining this sense of credibility when he moves into an administrative position where he supervises teachers that were former colleagues.

9. Legitimacy of Role

To a certain extent, the legitimacy of an individual's role will assist greatly in his acceptance as an information source. (Campbell, 1958). Thus, a central office supervisor in the area of science whose job it is to share information on new science materials and curricular items with teachers will be perceived as a much more legitimate source of information than a parent who is merely interested in science, a science textbook salesman, or a student teacher who has heard about a new science course at the university. Greater role legitimacy is often granted simply as a result of the individual's higher position within the school hierarchy as in the case of the school superintendent who, although he may have no expertise whatsoever in a particular innovation, can speak effectively to the school board in general terms favoring that innovation. Of course, role legitimacy may work against the adoption of new innovations in those cases where the individual occupying a role within the school hierarchy uses the legitimacy of that role to oppose or block an innovation (e.g., where the science supervisor supports existing science curricula materials and refuses to admit that anything substantially better is available on the market).

10. Leadership

Although a number of studies have pointed out the importance of leadership to change and innovation, it has also been suggested that, at least in part, leadership is the result of an individual's ability to adhere closely to group norms while at the same time maintaining an image of competence. This type of leadership conformity has lead some individuals to the assumption that leaders tend to resist innovation. This conflict with studies (e.g., Hollander, 1965) indicate that leaders see their roles as requiring them to innovate.

A wide variety of studies have examined leadership characteristics and the evidence gathered concludes that there are no common characteristics of leaders that consistently work in a wide variety of situations.

According to Sand (1971)

> Leadership is a function - not a position or a person. Leadership is concerned with how people can be brought to work together for common ends effectively and happily. Leadership is the ability to contribute to the achievement of those ends either through ideas or through ways of working to accomplish them. (p. 226).

The three major group factors which have been utilized in assessing group effectiveness: (1) the leader-follower relationship, (2) the nature of the group task, and (3) the position of the leader. (Fiedler, 1957).

A number of laboratory studies of small groups have highlighted the effectiveness of feedback for individual growth and increased group performance (Guetzkow, 1966; and Nokes, 1961). Several researchers have pointed out that group feedback is not as effective as individual performance feedback, and a combination of both individual and group feedback is by far the most effective of all forms of feedback. (Zajonc, 1962).

A distinction has also been made in the literature between interpersonal and task feedback with the most effective feedback in terms of performance improvement being the task feedback. Typically, task feedback is not immediately available, and consequently, has relatively little effect upon performance. It is assumed that a combination of task and interpersonal feedback operating at the same time would be the most effective type of feedback.

Several forms of intermediate feedback have been attempted in classroom settings. In one study, Gage, Runkel and Chatterjee (1963) provided student feedback regarding teacher behavior to the teacher on a regular basis. It was found that the teachers receiving such feedback were able to modify their behavior on the basis of the students' opinions, while at the same time gaining more accurate insight into their perceptual ability of student behaviors. The second mechanism that has been utilized for intermediate feedback is simulation, which is typically used within long range planning activities as a means for intermediate feedback (Guetzkow, 1962).

CHAPTER IV

THE ORGANIZATION

In any attempt to bring about institutional change, there are a number of variables within the organizational structure itself that either support or hinder attempts at change. Supportive and restraining variables are found throughout the organizational structure, but they tend to cluster in the following areas: (1) where new ideas and practices enter into an organization, (2) where those new ideas flow or transfer horizontally and vertically within an organizational structure, and (3) at the point where those new ideas and practices influence the services or externally visible products of an organization. Thus, an educational innovation must overcome certain obstacles when first entering a school system, then the innovation must effectively negotiate its way through the school system hierarchy from its point of entry to the various individuals and groups that ultimately must be involved prior to its effective implementation, and finally, the innovation must have some type of visible impact upon the services provided by a school system.

In the case of a new mathematics program brought into a school district by the curriculum director, a mathematics study committee, or an individual mathematics teacher, the innovation must first be brought into the system, then it must spread both horizontally and vertically to all of the key individuals within the hierarchy (e.g., teachers, principals, mathematics supervisors, the business manager and the School Board) before the idea can actually be implemented in the classroom. Once such a new mathematics course finally does reach the classroom, the new math

program then must contend with persons outside of the school system organization (students, parents, and various community pressure groups) as they come into contact with the new math program.

In this chapter, we are concerned primarily with restraining and supportive organizational variables; those factors within an organization that tend to either support or restrain the process of change within an institution. Although some of these supportive and restraining variables appear primarily at either the entrance point, the exit point, or while an innovation is spreading within the school system, other variables tend to be present at more than one of these places. The remainder of this chapter will be divided into two sections: (A) variables within the organization that act as restraining forces against change, and (B) variables within the organization that support change.

A. RESTRAINING FORCES

1. Stability and Inertia

There is a natural tendency in all organizations to maintain stability within the organization. School systems that have built up a systematic and orderly process of functioning will contain within the system a large number of individuals who rely heavily for their own personal support on that sense of stability that is provided by those organizations. Changes in a school system may threaten the stability of the organization by threatening some of the stabilizing factors (e.g., interpersonal or intergroup relationships), in addition to the natural tendency for individuals within an organization to prefer the predictability that comes from stability. The need for stability is one of those restraining vari-

ables that appears to operate throughout organizations, and a number of authors have pointed out this tendency to be concerned with internal stability (Whitney, 1950; Schon, 1967 and Menzel, 1960).

Stability carried to its logical extreme within an organization may result in the inertia of tradition, an institutional hardening of the arteries that may be visible in the extreme rigidity of the procedures, rules, regulations, and manner in which a school system is run. In particular, some of the very large school systems in this country (as well as other organizations that have been stable for some time) seem to be suffering from the inertia of size and tradition.

2. Role Specialization

School systems have typically been organized into a wide variety of substructures within which individual teachers and administrators tend to specialize in specific content areas, age groups of children, learning disabilities or handicaps, and, occasionally, sub-tasks within these specific areas (e.g., an English teacher at the high school level who uses a linguistics approach with "slow" ninth and tenth graders). In addition to the instructional and administrative staffs, school systems also contain a wide range of specialists in areas such as maintenance, food preparation and serving, transportation, procurement and disbursement of supplies, etc. This tendency to specialize has in effect created a number of different units within the school system where members share common interests, experiences, and problems (Landesberger, 1961).

This tendency for discrete sub-units to emerge from within the organization is prevalent within most large organizations and often results

in the development of a range of barriers among the various sub-groups. For example, one way in which communication is inhibited among the various sub-groups of an organization is caused by the tendency for each sub-group to develop its own specialized language system. In some instances, this language system may be the result of a specialized content area (e.g., high school physics) and in other cases it may be caused by factors such as the students' age level, or by special problems that teachers face in working with a particular student group (e.g., inner-city students). In addition to these common specialized concerns that emerge naturally within groups of teachers as a result of common content, similar student problems, or similar student grade level group members often adopt unique interest areas and language utilization patterns that further enhance the "in group" nature and cohesiveness of their group (Seashore, 1967). Thus, the esprit de corps of a small group of successful teachers in an inner-city demonstration school may result in radically different attitudes, word usage, and approaches to their students from that which is typically found among groups of less successful inner-city teachers who have been reasonably adept at developing defense mechanisms and rationalizations for their lack of success. Their differences in attitude, word usage and instructional approaches may preclude any significant communication between these two groups. The existence of such diversely unique specialty areas within the same organization often results in the need for "translation of information that is passed between one sub-unit and another" (Jackson, 1959). Katz and Kahn (1966) would extend this translation need as a prerequisite for effective information flow throughout the organization.

In much the same way that the emergence of sub-groups within a school system creates difficulty in effective communication, educators who work within one school system often develop a commonality of language, interest, and group specialization that may act as a restraining variable when those educators attempt to communicate with other groups from outside of their school system, whether those outsiders are non-educators, educator groups from other school systems, university personnel, research and development specialists, or state department of education employees. Part of this commonality within a specific school system comes from the shared experiences of members of that system, and part of it comes from their lack of familiarity with the unique elements of the external groups. For example, there is a vast communication gulf that exists between university professors and public school teachers in spite of the fact that they both belong to the general category of educators.

On the other hand, some individual teachers (e.g., a teacher of PSSC Physics course) may communicate more effectively with selected university professors (e.g., those who develop the PSSC Physics course) they they do with their school system colleagues who work in the primary grades.

Another restraining variable within the organization that is related to the emergence of sub-groups is the tendency for the various sub-groups within an organization to compete for material and human resources. Since the resources available to any school system are usually limited, school personnel quickly become aware of the fact that all requests for resources cannot be met. A number of authors have pointed out that the resultant competition among the various sub-groups within an organization can effectively create additional barriers between those units (Landsber-

ger, 1961 and Schon, 1967).

Finally, the existence of diverse sub-groups within a school system typically results in the emergence of widely disparate sub-group norms, goals, and values. Often the values, norms, and goals of a particular sub-group conflict with those held by another sub-group as in the case of the two clusters of inner-city teachers, one which has been successful and the other unsuccessful in working with students. Even in those instances in which attempts are made to bridge the various sub-group differences by bringing members of each sub-group together in a common group, "each person is likely to be so concerned about the group he came from, wishing to uphold its interests as its representative, that it becomes difficult for the members to become identified with the new committee" (Schein, 1967, p. 73).

At the same time that the proliferation of sub-groups within the organization tend to halt the diffusion of innovation within that organization, Sapolsky (1967) and Aiden and Hage (1968) have pointed out that organizations which have many diverse sub-parts and specialization areas tend to be more innovative. However, they also point out that in such organizations the innovations tend to cluster in one or another part of the organization. Lippitt, et. al., (1967) points out that while innovations do not occur as often in organizational structures which are controlled from the top, when changes are made in such organizations, they are brought about on a much wider scale.

Another factor that appears to encourage the emergence of diverse sub-group norms is the physical distance that typically occurs within school systems among the various school buildings. Physical separation helps

to support sub-group isolation not only among the various school buildings within a school system but also within individual schools where teachers tend to group themselves with other teachers who are located within the same building wing, and with whom they share lunchroom duty, recess duty, or take their break with. Lortie (1964) pointed out one instance where an innovation failed specifically because adoption would have meant breaking up a traditional coffee break meeting time for key teachers within a building.

In the course of working within a particular school building for a number of years, strong social relationships emerge among the various faculty members. These patterns of social interdependence, both within a school and across school lines, often act as preferred forms of communication for the individuals involved. Any suggested change or innovation in a school system which might disrupt those existing social channels would result in a great deal of resistance from the individuals concerned, primarily because of the possible need to modify existing social relationships (Schon, 1967).

In addition to the emergence of isolated groups of teachers within school systems, there has been a tendency for specific, clearly defined teaching roles to emerge. To the extent that these roles are narrowly defined, the delineation of those teaching roles may hamper the receptivity of the individual occupying that role to innovation and change. Thus, if the school administrator emphasizes such explicit job description elements as teacher check-in and check-out time, how she should spend her lunch time (supervising the lunchroom), where she is allowed to spend her planning period, and stresses that she must be in her own classroom

at all other times, there is little likelihood that the individual elementary teacher will be encouraged to become involved in any attempt to team teach with her colleagues. (Michael, 1965).

3. Perceived Threats

All organizations are subject to some external influences, and school systems are particularly vulnerable to potentially negative forces from their external environment. As with most organizations, schools are responsible to their clients, adults, community organizations, various governmental controls and changing public opinion. Perceptions regarding the school systems' relationships to its larger environment are often significant barriers to, or at least important influencers of, the types of educational changes in which the school system is interested (Lippitt, Watson, Wesley, 1958). In addition, there is a tendency among school personnel responsible for linkage with outside agencies (e.g., school superintendents, school board members, etc.) to conservatively interpret the limits beyond which a school system might stretch its perceived credibility.

These perceptions of vulnerability on the part of school personnel seem especially strong during periods of rapid social change, since, as Sieber (1967) points out, school systems occupy an extremely vulnerable position with relationship to local community forces. One of the unanticipated consequences of such fear of outsiders occurs when the school administrator who is afraid of offending outside groups (and is especially concerned about not offending minority groups) allows only non-offending instructional programs and activities into the school - thus inadvertent-

ly promoting the emergence of a sterile curriculum that is completely unrelated to real life.

Another aspect of educators' perceptions that outsiders to the educational organization are a threat, has resulted in a general disinclination on the part of educators to share information about the school system or its students with any outside groups. University researchers, parents, study groups, and students are all considered outside groups when such "privileged" information is considered. At the same time, teachers and administrators often think nothing of sharing such privileged information about students with other administrators and teachers who are completely unknown to them (e.g., when a student is transferring to another school district, it is common practice to forward a students records to the receiving school upon request.

This perceived threat from outsiders has also resulted in a public relations consciousness on the part of many educators.

> In large part, the organizational maintenance syndrome in schools, with its attendant emphasis on the control of pupils, can be explained by the reward system for administrators and teachers as they presently exist. ...School administrator's rewards are for system maintenance and custody: the absence of fights in the halls, student unrest, disciplinary problems and of trouble on or off school property. This pressure for order is transmitted to the classroom teacher. (Helsel, 1970, p. 31).

Every attempt is made by them to project an image of effectiveness and efficiency to outside groups. The tendency for administrators to become overly concerned with the superficial indices of this image (e.g., orderly students, clean halls, etc.) and this preoccupation with the cosmetics of education, combined with the prevailing belief that educators are professionals who are somehow beyond making mistakes often

ends up in situations where educators have "egg on their face."

> As is true with the principal and superintendent, but perhaps on an even greater extent, a teachers principle rewards are for maintaining a well disciplined and generally agreeable class. (Coleman, 1969, p. 18 & 19.)

The point is that educators have reacted to various external threats by projecting a superficial image of competency and efficiency for the last several decades.

At the same time, many educators have begun to believe their own public relations efforts and have adopted the position that the schools never (or very seldom) make mistakes. A good bit of the recent social concern for schools is directly related to the large gulf that exists between what educators say they are doing, and what actually is happening with the youngsters coming out of the schools. School system personnel may also rationalize that danger to their clients prevents the school system from becoming involved in a particular innovation. Under this rationale, a school system can justify waiting until an innovation has proven itself elsewhere. There is an implicit assumption within this argument that existing practices within the school system are not harmful to students - an assumption that has been questioned by some educational reformers (Silberman, 1970). It may be that the reluctance to innovate on the basis of potential danger to the client may in reality be a fear that there is potential danger to the organization or individuals within it. Thus, if an administrator is unsure about whether or not a particular innovation will really perform more effectively in a given area, he may be quite reluctant to switch from a practice which may not be very good for the student (but at least does not present a real danger to the educator from potentially irate parents who are dissatisfied

with the results of a newly introduced innovation).

5. Complacency

Local pride and the complacency that often accompanies that pride can be an effective barrier to change within a local school system. As within most organizations, educators develop images and perceptions of themselves that are positively reinforcing and, in some respects, accurate. As a result, a certain amount of defensiveness can be generated when an innovation is brought from outside of the organizational unit. A belief in the traditional standards of excellence, the past quality of students, reflections on how their school has been in first place for years (by whatever measure they choose to utilize), and a feeling that if a new idea is any good, someone in the local school system would already be using it, all help to erect barriers that prevent the adoption of new innovations. Allen, (1966) provides evidence for the existence of this obstacle to the use of outside knowledge within organizations.

6. Status and Size Differences

It is possible, in situations where a major status difference exists between two organizations, that the individuals encounter major barriers in their communication attempts (Paul, 1955). Although Paul's example had to do with medical organizations (higher status personnel) attempting to influence individuals in lower socio-economic groups, the implications for education are interesting. Where outside consultants and change agents are brought in to speak in favor of a specific innovation to a group of local citizens, and where those consultants are ob-

viously from a different socio-economic class then their audience (as perceived by that audience) there is a distinct likelihood that status barriers will emerge in the process of their attempted interactions. In the same way, perceived status differentiation may be so great between teachers in a rural setting and teachers in an urban setting that communication barriers emerge between these two groups. According to Havelock "the fear of being judged inferior - on rational or irrational grounds - serves to inhibit the approach of a lower status organization toward another for information." (1969, p. 2-19).

Generally speaking, a greater amount of change appears to take place in large (Carrole, 1967) and affluent organizations (Mort, 1941; Watson, 1946; Mansfield, 1963; Richland, 1965; McClelland, 1968). However, it may be that this relationship is curvilinear with the medium-large organization being most innovative and the extremely large organization being slightly less innovative (Markham, 1965).

7. Affluence and Rewards

The financial status of an organization may be an influential factor in whether or not that organization accepts and utilizes new ideas. In other words, when an organization is barely solvent, it will have some difficulty in being innovative while those organizations that are relatively well-to-do financially will be able to seek out and experiment with new discoveries (Whitney, 1960; Mansfield, 1961 and 1963). At the same time, simple possession of a large financial base will not necessarily assure innovativeness, since individuals within the the financially well-off organization must also be dissatisfied with their existing state

of affairs in order to consider changing (Schein and Benis, 1965; Schon, 1967). In a study by Carlson, no correlation was found between per pupil dollar expenditure and school system innovativeness in a large region of Pennsylvania and West Virginia (Carlson, 1965).

Even within the organization, members are not traditionally rewarded for their innovativeness. In fact, the level of reward that an individual received appears to be inversely related to his level of innovativeness since most employees are rewarded primarily for stable, dependable behavior. As stated by Katz and Kahn (1966) "the man on the assembly line, the nurse in the hospital, the teacher in the elementary school all know what their major job is. To do a lot of it and to do it well are the most conspicuous behavioral requirements of the organization". (p. 338). Typically, financial rewards and promotion within school systems go to those individuals who have not been innovative but instead are considered reliable. This prevailing practice of rewarding reliability has been studied closely by Peter (1969) who points out that "in a hierarchy, every employee tends to rise to his level of incompetence."

8. Training and Assimilation

There are a variety of subtle and not so subtle messages which are communicated effectively to teachers new to a particular school system during their first training session. For example, the typical introductory training session focuses primarily on administrators telling teachers to make sure that the administrative requirements of the school are followed rather closely. Both formally (from the speakers) and informally (from their colleagues who already work within the school system)

the new teacher is quickly indoctrinated into the existing organizational structure. Too often school system training programs inculcate an attitude of caution and maintaining the status quo. In this way training serves to perpetuate the existing system and prevent the entry of new innovations.

Once a teacher arrives at a specific school, the formal and informal training continues as the new teacher is assimilated into the sub-group and clustered within that sub-group where she will spend most of her working hours. Very quickly the norms, goals, and attitudes of the group are made readily apparent, and the newcomer is tested to determine the extent to which the newcomer's attitudes, values and goals are congruent with the sub-group. Typically, this socialization process develops a group cohesiveness and allegiance that ultimately may prove to be a significant barrier to change.

Often the informal training programs of the school system are in direct conflict with the expectations of a new teacher as to what should be happening in schools. The resultant inner conflict in the neophyte teacher often results in much frustration and disappointment. Part of this frustration is caused by the pre-service training program which has oriented the teacher almost exclusively to what ought to be going on in schools, rather than what is actually happening. When this new teacher arrives within a school setting, and must compare what he knows ought to be in the schools against "...his actual experience in the schools - inadequate curricula, out of date texts, real adolescents, and his own stumbling instruction - tension develops. This tension does not disappear until the teacher either achieves his ideal or lowers his standards.

Most are forced to lower standards." (Ryan, 1970).

In addition to the influence of her peers, the new teacher is also subjected to assimilation and socialization pressures from a range of other sources, including both school administrators and students (Ryan, 1970; Haller, 1967), in examining teacher socialization by pupils points out that:

> Student reinforcement of teaching behavior suggests that the novice teacher's first class may be of paramount importance in determining her "teaching style" for future classes. Those things which "worked" - i.e., were reinforced - with that first group may be repeated much more frequently with subsequent classes...

9. Goal Differences

Occasionally innovations are objected to because there is some conflict over whether or not a particular task or innovation falls within the goals of the school system. Thus, controversial subjects such as sex education and religious training often meet with varied forms of resistance based upon different perceptions of what the schools goals ought to be. In the same way, much of the current controversy over student behavior in the schools is a result of differing perceptions between parents (and educators who still perceive the need for strong and continual external controls on student behavior) and other educators and parents who believe that effective learning requires student control over and responsibility for his own behavior.

Another goal-related problem caused in part by the traditional ambiguity of educational goals is the frequent conflict between different sets of educational goals held by different parts of the same school sys-

the same building to be at opposite ends of the spectrum on the issue of student behavior. On the ambiguity of organizational goals in education, Sieber (1967) states

> The diffuseness of terminal goals reinforces the effects of vulnerability and of status insecurity on the emergence of innovative roles. First, with regard to vulnerability - because it is difficult to adduce evidence for the effectiveness of an educational practice, it is often hard to oppose the naive demands of laymen, or to sell to the public innovations that are thought by educators to be of special value. (p. 168).

Thus, the layman continues to demand external control of student behavior since the educators disagree among themselves and, in addition, have difficulty presenting evidence that supports their position.

10. Organizational Structure

Within the organizational structure, employee preoccupation with status symbols can have a significant restraining influence on the spread of innovation. Since status comes from a variety of sources such as prestige, control over others, responsibility and authority, these task characteristics often become identified with specific positions within the systems hierarchy. As a result of their preoccupation with hierarchical status symbols, some members have actually immobilized several industrial organizations (Burns and Stalker, 1961). Other investigators have discovered similar instances of barriers emerging within organizations as a result of status discrepancies within the organizational hierarchy (Fromhan, 1969).

Griffiths (1964, p. 434) pointed out that "progressive segregation often occurs in elementary schools when organizations divide into hierarchical structures, and points out that "the more hierarchical the stru-

ture of an organization, the less the possibility of change". In addition, several other authors have examined industrial settings and governmental agencies and have pointed out the restraining impact of hierarchical structures on the spread of information.

One possible reason for this phenomena is the control that superiors within an organizational hierarchy have over the reward system. Under this arrangement, subordinates within the hierarchy will be very reluctant to transmit any data that does not reflect favorably upon themselves (Jackson, 1959). In addition, it is unlikely that the subordinate within the hierarchy will forward any information that cannot be completely supported by data - a condition which for the most part does not exist with most innovations (Schon, 1967).

A number of authors have pointed out that the manner in which power is distributed within an organization can have an impact upon the organizations ability to innovate (Lippitt, Watson, Wesley, 1958; Miles, 1964). In those cases where power is centralized at the top, the tendency for subordinates to become overly dependent often leads subordinates to become preoccupied with trying to figure out what their boss is thinking with a corresponding decrease in subordinate attention to effective implementation within his own area of responsibility.

Chesler and Franklin (1968) point out that the communication structure within a school seems to have a different effect on adoption than it does upon innovation. In those schools where the communication structure was more hierarchical, teachers adopted more often then in schools with more diffuse organizational structures. Thus, it seems that under an autocratic hierarchy teachers can be directed to adopt something or

accept a decision from the top of the hierarchy far more readily than they can be told to invent or create something new. Such adoption at the direction of someone else tends to be a less stable process which Kelman (1958) termed "compliance"; as compared to the more internalized identification with personal choice, that is often associated with creativity or innovativeness.

11. Leadership Behavior

Since the leader within a particular organization often serves as a model for subordinate behavior, he can serve as a significant deterent for change within an organization (Bowers and Seashore, 1966). A number of authors have reviewed the extensive organizational research on leadership (Cartwright, 1965; Tannenbaum, 1958).

SUPPORTIVE VARIABLES

At the same time that there are many organizational variables that tend to act as preventive or restraining forces when new ideas or practices are attempted within a school district, there are also a number of organizational variables that can support change within a school system. A number of these support variables have also been cited as restraining variables (e.g., leadership) since the potential impact on change of a particular variable can occasionally be either positive or negative depending upon the application of that variable to the innovation. Wherever possible, examples have been given of how these supportive variables within the organization might be used to more effectively and quickly bring about change within school systems.

1. Rewards

Although one of the most common stimuli for change in the world of business is the potentiality of financial reward (Mansfield, 1963) and the fear of profit loss, such reward systems are not as clearly supportive of innovation within the field of education. Part of the problem in using rewards as a stimuli for change in education is based upon the difficulty of measuring improvements in education, a condition which typically forces educators to rely for their "rewards" almost entirely upon their own personal satisfaction in doing a better job. In education there is typically no concern over potential loss of reward since most educators can effectively rationalize themselves into perceiving themselves as effective teachers whether or not this is the case in reality.

At the same time, the use of external rewards can be an extremely effective variable for changing some educators. Typically, the educators most susceptible to reward stimuli are those educators who are interested in advancement within their profession. Thus, a school administrator may be using a particular school system organization simply as a showcase for a number of innovations that he can talk about when applying for his next job. There is some danger in this particular approach since overemphasis upon showcase innovations may result in very little real change in a school system after the promoter of those innovations leave the system.

Likewise, some educators who identify strongly with the teaching profession or a specific sub-element within that profession, (e.g., Reading, English, Physics, etc.), may expend a great deal of energy in keeping up with the latest developments in their particular branch of the

educator professionalism as a means of encouraging strong, knowledgeable leadership for bringing about change in the local school system. Kimbrough also points out that educators who view themselves as working within a "poor" school system may adopt a passive stance with regard to attempting any changes in that school system because of the perceived hopelessness of the change task.

In school systems where the internal reward structure is designed to reinforce innovative educators by recognizing and rewarding them on the basis of their innovative effectiveness, the reward structure can effectively support institutional change. Even in those school systems where salaries and other financial fringe benefits are relatively fixed, the reward system can be restructured to support teachers who are willing and receptive to change. For example, a number of common elements and prerequisites that already exist within the educational organization (e.g., planning time, materials and supplies, preferred locations, and assistance from teacher aides) can be channelled as rewards into the hands of those teachers who are supportive of change within a school.

2. Leadership

Leadership personnel within school systems can exert potentially powerful support for change within education. The leader not only has an opportunity to function as a role model for his subordinates but can also directly influence and control a number of the variables referred to in this document. he can establish an open climate, structure the internal reward system of the organization so that it supports change, develop or purchase effective training programs, and perform a wide variety of

other supportive activities.

A number of studies point out that a periodic change of leadersh is especially useful in promoting innovations. As Griffiths (1964) h pointed out "the number of innovations is inversely proportionate to tenure of the chief administrator". By changing the top leadership, organization is able to obtain new knowledge and perspectives as well a commitment on the part of new leadership to test new approaches whic result in the creation of a state of disequilibrium throughout the orga nization. As a result, there is a greater opportunity for others withi the organization to change as a result of the new leaders joining the organization. (Marrow, Bowers and Seashore (1967) point out the useful- ness in top leadership change in promoting subordinate preparedness for change. In selecting new leadership personnel, Carlson (1965) points out that new leadership personnel who are brought in from outside of the school system bring about greater changes within the school system then those who have been promoted from within. A similar conclusion was stated by Griffiths (1964) but in extremely large and stable school sys- tem organizations it may be an impossible expectation to hope that one new leader at the top will have an impact that permeates the entire orga- nizational structure.

3. Crisis

Real or imagined crises within the organization can stimulate the seeking out of new ideas and approaches to helping the organization meet those crises. In effect, the crisis period in an organization can create an openness and a receptivity to new information that otherwise would not

be present. Etzioni (1964, p. 55) has pointed out that "a departure or death of the non-bureaucratic head of an organization ... involves a major organization crisis. The succession crisis is particularly evident in totalitarian states, and almost invariably leads to a period of instability. But corporations, churches, armies and other organizations are also subject to similar crises". Although school systems are for the most part regarded as bureaucracies, leadership change within school systems typically will create a crisis situation within that group of subordinates and followers who perceive themselves as linked directly to the displaced or transitional leadership role.

Sand (1971, p. 221) has pointed out the usefulness of crisis in bringing about curriculum change: "any discussion of forces influencing curriculum change must deal with the challenges that await solution during the 70's - the revolt of the students, racial unrest in the schools, the rise of parent and teacher power. Each of these can be a restraining force to rational curriculum change if "pure" power is the goal. Each can be a supporting force if it results in leadership and cooperative governance".

But when we examine crises that are created by students, it is interesting to note that they emerge primarily over local issues. Friedenbert (1971, p. 117) has pointed out that "conflicts in high schools center much more on local grievances; they are more likely to be precipated by specific administrative actions that students find offensive, and to be sustained by persistently oppressive administrative policies".

A crisis situation, whether it is real or has simply been created by an effective manager as a means of "inducing deliberate internal change towards innovation" (Schon, 1967, p. 127) tend to promote those feelings of discomfort and perceptions of pain among subordinates within an organization that appear to be necessary before new innovations will be sought out and utilized (Schein and Benis, 1965; Lippitt, et. al., 1958). Within education, the crisis created by Sputnik I significantly influenced the adoption rate for those innovations that were perceived to be related to the resultant increase in demand for highly trained and skilled technicians that could aid the United States in its national struggle for survival (Miles, 1964).

The use of artificially created crises as a change lever within organizations may have differential effectiveness depending upon the organization under question and, in addition, continual usage of the same crisis management technique over a period of time may result in a significant loss in its effectiveness as the organizational members become accustomed to living in a state of ambiguity brought on by the perception of crisis. That is, when crisis after crisis occurs without any perceived real damage resulting to individuals within the organization, there is a tendency for the crisis threshold level to rise, thus enabling individuals within the organization to tolerate much higher levels of ambiguity.

4. Competition

Although competition has been utilized within the business world as a sustainer of change, some authors point out that this perceived stimuli

for change is largely a myth. Within school systems, competition among various sub-groups may bring about some changes, but in the long run, the deliberate promotion of competition among sub-units within the same organization may also prove to be disfunctional as individual members of those sub-groups begin to perceive that the school system's rewards primarily go to other sub-groups.

5. Training

In-service training within a school district can be one of the most supportive or most restraining variables for change in that school district. Brickell (1963) has related the pre-service training perceived by teachers to their eventual innovativeness and flexibility in the classroom. Buchanan (1967) stated the value of training as follows:

> The function of organization development (O.D.) programs is to help an organization improve the extent to which it accomplishes its intended goals or carries out its functions. In the case of school systems, this means improvement of the schools contributions to the learning and development of children. But O.D. also has an objective which goes beyond that of facilitating improvement, and that is to help an organization attain a condition of "self-renewal" - to become sufficiently viable to continuously adapt to its changing environment and its own internal forces: thus, the concept of organization development rather than improvement. The distinction is similar to that made by educators between learning and learning how to learn. O.D. when effective, results in an organization which has processes, norms, procedures, and member skills required for continuous adaptation and thereby continuous optimal fulfillment of its goals." (p. 2)

According to John Gardner (1969) a self-renewing institution is based on the concept of pluralism wherein the organization is "characterized by variety, alternatives, choice and multiple foci of power and initiative". (p. 12.). Watson (1967) has pointed out that one of the characteristics of a self-renewing organization is a mechanism within

the organization for "sensing internal and external changes which call for creation of new procedures". (p. 13). In various organizations this role could be performed by an office for research and development, by using consultants, or engaging in industrial espionage. The absence of personnel that specifically look for and ascertain internal or external difficulties before they become critical may result in an organization that cannot be self-renewing. According to Glock (1961) and Paisley (1968), the crucial question in organizational renewal where such sensing units are utilized is their relationship to the responsible decision makers and gate keepers of the organization.

School systems can support change within their districts by sending personnel to conferences, to visit other school districts, or to, in some other way, effectively interact with personnel from outside of the local school district as a means for obtaining information. Although only some of these outside activities are traditionally classified as training (e.g., advanced academic courses, conferences, professional meetings, conventions, seminars) other activities such as teacher exchange programs, student exchange programs and the visiting of demonstration sites in other school settings can also prove to be of extreme value to the sending (as well as the receiving) educational institutions. (Brickell, 1963).

Since a school system does not typically send its members out to visit other sites, attend conferences, etc., on a random basis, the awareness of external training options, the prioritization of those training options, and the selection of personnel to take advantage of those options can be a crucial combination of variables in support of change within the school district. For example, teachers who are at different stages

within their personal growth (i.e., awareness, interest, evaluation, adoption) should become involved in external activities that are uniquely appropriate for their own particular stage of development. If the variables and factors contained within the site visited are not congruent with the expectations and needs of the visiting individual, the resultant visit may prove disfunctional in terms of any real changes back in the home school district.

6. Alternative Structures

Outsiders do not always attempt to work within existing organizations but occasionally attempt to establish competing organizations. In the case of school systems, a number of current innovative suggestions would establish such competing systems (e.g., alternative schools, the voucher plan, etc.) In a sense, by invading the educational territory that was previously demonated in an exclusive manner by the existing public school structure, such emerging "outside" organizations can exert a significant influence on the existing school organizations. However, outsiders venturing into education are not always as successful as they initially appear to be in accomplishing their task. This failure may be the result of a wide range of factors including conflicting organizational goals (e.g., where business enterprises have moved into the educational structure market and have had difficulty linking profit with their product) or where the emerging organizations are unable to acquire clients or support that traditionally has gone to the existing school system.

7. Importing Human Resources

School systems can also utilize their purchasing power to employ new persons who already possess the knowledge needed to advance a specific innovation. Under this arrangement, the employed persons may or may not be considered leadership personnel in terms of their hierarchically occupied position, but they do possess knowledge which will be utilized by other personnel within the school system.

Another way in which the school system can add human resources that are influential in changing the schools would be to add new positions to a school system (e.g., teacher aides, both voluntary and paid) or to redirect the source of a traditionally stable human resource pool currently utilized within the school system (e.g., by obtaining student teachers from newly emerging innovative teacher training programs rather than from traditionally structured programs that are at other universities). The importation of new categories and types of human resources into a school system is effective primarily where used in combination with other supportive change variables.

By creating a sub-unit within a school district which has the specific responsibility of seeking out new combinations of information and talent, both within and without the school system, the organization can, in effect, create a sub-unit whose task it is to bring about change within the school system. Such a change oriented sub-system might be a demonstration center, an information retrieval system (Veyette, 1962), a planning unit; a systematic research unit (Katz and Kahn, 1966); or a developmental unit. Regardless of what the unit is called, the major task of such a sub-unit would be to facilitate information flow about new inno-

vative practices both within and outside of the school district. Katz and Kahn point out that the effective functioning of such a sub-unit depends to a large extent upon where it is placed within the organizational hierarchy; to have maximum impact, such a sub-unit should be directly linked to strategic decision making personnel within the organization.

8. Openness

Open organizational climates that contain supportive interpersonal relationships, mutual trust among various employees, free systems of communication also tend to support innovation (McGregor, 1960; Likert, 1961; Wilson, 1961; Costello, and Zalkind, 1963; Miles, 1964; Schein and Benis, 1965; Shoenfield, 1965; Watson and Blazer, 1965; and Benis, 1966). The extensive participation by personnel throughout the organizational hierarchy in decision making that focused upon school system problems also has a tendency to support high morale and receptivity to change. Peck (1969) has related the degree of openness as measured by teachers' level of dogmatism to the teachers' receptivity to change.

9. Values of the Positive Image and Shared Perception

To a certain extent, the school system may be able to encourage innovation and change by promoting an image as a progressive and innovative school system. To the extent that this image is acceptable to the individuals within the organization as well as the various client systems and community groups that support that organization, the innovative image may eventually become a self-fulfilling prophesy where teachers are inno-

vative because they are expected to be innovative.

One way of enhancing communication among different sub-units is to develop a commonality of perceptions regarding some larger goal that transcends specialty areas (Blake and Mouton, 1961; Schein, 1965), a new reading program, or science program. In one sense, having such a common goal pits these various sub-units together against a common enemy. The use of a common enemy can be extremely useful in helping sub-units to put aside their minor quarrels, but does present one problem in terms of long range usefulness since the eventual disappearance of the common enemy typically results in a re-occurance of the prior communication blocks among the various sub-groups. (Blake and Mouton, 1961; Schein, 1965).

10. Groups

One traditionally effective way of overcoming resistance to change within an organization is to establish a routine pattern of meetings of various groups within the organization. This practice has been referred to as "institutionalized interaction" by Guest (1962). The use of such staff meetings can be an effective way of encouraging individual participation in a sharing of influence and, according to several authors, can assist in strengthening communication linkages (Likert, 1961). However, it is crucial that individuals who plan to use this strategy should "display an interest in the ideas of their subordinates and make use of these ideas". (Likert, 1961, p. 38).

By setting up a number of groups with overlapping membership, it is possible to enhance the flow of ideas from one sub-group to another.

(Likert, 1961, 1967; and Lorsch and Lawrence, 1965). A variety of overlapping groups have been suggested based on different structural approaches: (a) vertical grouping which includes superordinate, subordinate co-membership, (b) horizontal grouping which includes peer co-membership, and (c) horizontal grouping of ad hoc task forces including representatives from a variety of committees. ..

11. Job Rotation

Several authors suggest that job rotation may be another way to encourage the communication of new ideas within an organization (Guest, 1962). Although this approach has been used primarily where radically different technical knowledge and skills are found within the various subgroups, such rotation also seems to have positive side benefits. Although most of the examples cited are from industry, applications to education may be rather interesting. For example, one way of effectively increasing a teachers perception of what goes on within the larger organization may be for several teachers to exchange roles for a week. Although this would not be exactly what is meant by "job rotation", it may be a much more effective idea for use within schools.

12. Link Pin Specialists

In predicting organizational structure in the future, Benis (1965) suggests that leaders will be replaced by organizational specialists whose primary function was to facilitate knowledge flow from one sub-unit to another. This coordinating task would of necessity require an individual who can communicate effectively in the various languages used by sub-

groups and who can also mediate effectively among groups.

13. Restructuring

A logical extension of the idea of overlapping groups and developing new roles is the concept of completely restrucruting the existing organization as a means of facilitating innovations. One way of restructuring organizations where sub-units are not communicating with each other would be to add additional sub-units that are mutually appealing to both of the non-communicative sub-groups (Price, 1964). Although this approach seems as if it may have been appropriate between biologists and fish hatchery workers, and although it may work effectively between groups of university research professors and educational practitioners, it does not seem to be an appropriate idea to use within a school system since it would seemingly simply add to the bureaucratic weight within the schools.

Another approach toward modifying the structure would be to increase the average span of control. Barrett and Tannenbaum (1967) point out that "While the addition of individuals to a group is an arithmetic function, the increase in the number of relationships between individuals is geometric. Hence, the number of relationships increases very rapidly with only small increments in the span of control" (p. 5.). Thus, by enlarging the span of control, subordinates within a group are provided with an increased number of information sources within their own group.

One of the more recent ideas for restructuring schools is the concept of differentiated staffing. Under a differentiated staffing arrangement, roles and hierarchical positions would be deliberately restructured

utilizing a variety of alternative approaches as a means for deliberately fostering innovation and change within the school system.

. New types of staffing and salary patterns are intended to help to establish the teacher as a full, professional colleague in decision making regarding policy, curriculum and instruction relevant to assigned responsibilities. The concept suggests a radical departure from the traditional class and school structure, with its intent focused on two vital goals: (1) improved educational opportunities for students, and (2) greater professional opportunities for teachers. (Frinks, 1971; Allen, 1970; Budelman, 1971).

14. Decentralization

Although decentralization has been suggested as a means for increasing the capacity for information flow (Griffiths, 1964; Katz and Kahn, 1966), it has also resulted in restriction of information-sharing between the various sub-parts of the decentralized organization. Within the industrial setting, decentralized sub-units may stop communicating with other sub-units because they perceive themselves as self-sufficient, and under a decentralized plan, the central administrative unit may not want to interfere with sub-unit operations (Likert, 1961). Decentralization has been attempted by a number of the larger school systems in the nation and the results of these massive reorganizations do not seem to have had much positive impact upon the operation of schools or the education of children.

Nevertheless, researchers continue to extol the virtues of decentralization. On the basis of his research with scientists, Pelz (1966)

has suggested that the establishment of a decentralized atmosphere may promote innovations. Schon (1967) and Beckhard (1966) both recommend that industrial organizations increase there decentralization, and Griffiths (1964) believes that decentralization is an appropriate means for improving the effectiveness of school systems.

15. Geographical Arrangements

It has been suggested that spacial mechanisms are useful in supporting innovation. Both physical distance and proximity among teachers can become a means for increasing or hampering communication and interaction between groups. It has been suggested that physical location can have a significant impact on the amount of information flow to and from subunits within an organization (Burns and Stalker, 1961). Not surprisingly, it was found that the groups obtaining the least amoung of information were located the greatest distance from the center of the organization.

16. Social Engineering

Applications of current thought in social-system reorganization and technology can be utilized to improve organizational effectiveness (Rice, 1963; Marrow, et. al., 1967). Social engineering, as used by these authors refers to the impact of both the social grouping or organization members and the work flow within the structure, upon behavior, task accomplishment, and knowledge flow.

By considering the organizational interaction between technology and the members within an organization, social engineers believe that they

can enhance the organization's effectiveness by taking into account the two variables.

CHAPTER V

THE INNOVATION

In this chapter we will discuss selected characteristics of an educational innovation that seem to be crucial variables in whether or not a particular change or innovation is adopted by school systems. Since it would be impossible to discuss all of the characteristics of all innovations, we have attempted to select those characteristics that are common to a number of educational innovations. Since even these more common characteristics of educational innovations represent an extremely wide range of significantly different elements, these differing characteristics suggest that correspondingly different processes and strategies should be used in their adoption.

In the same way that the different people and organizations who implement educational innovations have diverse characteristics that result in their being more or less receptive to a particular innovation, the diverse characteristics of different innovations may effect a given group of adopters within a particular organization in quite different ways. For example, the characteristics inherent within the innovation commonly referred to as team teaching may be quite acceptable to a given group of innovators within a particular organization while, at the same time, the characteristics associated with the innovation referred to as non-gradedness may be completely unacceptable to that same group of innovators within the same organization. By examining the characteristics of a number of innovations that seem to be related to the adoptability of that innovation, we hope to be able to point out some of the

major variables for acceptance or rejection of particular types of innovations that are inherent within the innovation itself.

In categorizing these common characteristics of innovations, it will be helpful to distinguish between intrinsic characteristics (those which are inherent within the innovation) and extrinsic characteristics (those characteristics that have meaning only in relationship to the individuals implementing a particular innovation or the environment within which that innovation will be implemented. (Barnett, 1953). After analyzing the intrinsic and extrinsic characteristics of innovations, this chapter will focus upon the different types of changes that are required of the individuals who will be implementing a particular innovation. Finally, the third section of this chapter will focus upon a delineation of various types of client (user) feedback that occurs as a result of implementation of the various innovation types.

I. INTRINSIC CHARACTERISTICS

There are five major intrinsic characteristics of innovations: (1) the scientific basis for the innovation, (2) the value loading of an innovation (the value message that is implicitly or explicitly carried within an innovation), (3) the divisibility of an innovation, (4) the complexity of an innovation, and (5) the communicability of an innovation.

1. Scientific Basis for the Innovation

According to researchers, knowledge can be classified as being scientific if it has a high degree of reliability, validity, internal consistency, congruence with other scientific theories and generalit-

spite of the fact that these dimensions are of great importance to researchers, there is apparently little research that has been conducted on the relationship between the scientific status of an innovation and the adoption rate of that innovation. In fact, some observers have pointed out that labelling an innovation as "scientific" may even have a negative effect on the diffusion of that innovation (Beal and Rogers, 1958; and Handlin, 1965). Thus, although scientific basis for an innovation is one clearly identifiable characteristics (at least to research scientists), a number of other variables such as the educational level of the implementor, and the perceived credibility of the information source seem to be far more influential in the adoption decision.

At the same time, some educational innovations have apparently utilized their scientific status as a positive factor in the adoption procedure. For example, PSSC Physics, is not only an innovation in one of the "hard science" areas but the innovation itself can directly trace its parentage to a number of highly visible and respected scientists. Although the phenomenally widespread adoption of PSSC Physics cannot be attributed solely to its status as one of the more scientifically based innovations of the last decade, the close identification of PSSC Physics with scientific status does seem to have been influential in creating an image of scientific respectability which may have enhanced the image of that innovation in the eyes of administrators and teachers who were potential adopters of new high school curricula materials.

2. Value Loading

Most innovations contain implicit or explicit value messages that impact upon the potential user of those innovations in a variety of ways. In the previously sited example of PSSC Physics, there is an inherent "bias" or value loading that favors the use of the scientific method and, in fact, implicitly values science and technology as one of the more significant cornerstones of our social system.

In the same way, the old Dick and Jane readers are currently coming under attack because they were "value loaded" toward middle class values in their portrayal of family life.

> One might conclude from these books that Americans are almost exclusively Caucasian, north European in origin and appearance, and are quite well to do. Poverty does exist but only in stories set in a foreign environment or in fairy tales. Foreign nationalities as well as American minority groups are placed in either an unfavorable light or are treated inadequately. Religion is rarely mentioned, but Christian religious observance is over emphasized with no hint of the range or variety of observances found among different religious groups. (Klineberg, 1963).

> In the past decade there has been a growing dissatisfaction with the content of first grade reading textbooks. The crux of this dissatisfaction revolves around the lack of relatedness of these textbooks to the developmental concerns and interests of most children in America who are learning to read. Various authors have indicated that on a priority basis, the predictably pollyannish, affectless suburban life depicted in first grade readers is either alien or inappropriate to the experiences of the lives of most first grade childre. (Busch, 1970).

As a result, new curricula materials have emerged that attempt to communicate multiple value systems and orientations (e.g., the Bank Street readers, Bilingual Education Programs, etc.).

As a result of the value loading of a specific innovation, it may be more or less acceptable as a new innovation within a particular schoo

district. Thus, the old Dick and Jane reader expressed values that were congruent with the values of many middle class students, parents, and teachers and, as a result, was quite acceptable for a long period of time to those individuals. During that same period of time even though the reader may not have been appropriate for students of lower socio-economic backgrounds or students from minority groups, since the teachers who were involved in curriculum selection decisions were primarily oriented toward the middle class, the question of appropriateness seldom arose, and where it did, the so called professional judgment of the educator usually carried the day. More recently, however, the value system of our society is undergoing a significant shift and both educators and parents are placing a higher value upon curricular materials that are less blatant in their exclusive promotion of the middle class way of life.

> In reality, however, America is a pluralistic society, a society of diversity and complex problems....Despite the fact that 60 per cent of Americans live in cities, city life is largely ignored in these readers. In line with this, research studies have pointed out that the cultural inappropriateness of the stories has been an important contributing factor to the low reading achievement of culturally-different youth. (Zimet, 1969).

3. Divisibility

Rogers (1962) defines divisibility as "the degree to which an innovation may be tried on a limited basis". (p. 131). Those innovations that are adoptable on a limited basis (either in terms of scale or time period) are much more easily disseminated than innovations that do not possess this divisibility. For example, the concept of differentiated

throughout the school hierarchy. Even though the concept of differentiated staffing in its "pure" form is not easily divisible, school administrators have divided the concept into more adoptable parts (e.g., the addition of teacher aides, the designation of teaching teams, etc.) while at the same time ignoring some of the major structural elements within the concept of differentiated staffing (e.g., the major salary differentials among different levels) because of the difficulty inherent in any attempt to implement those components. At the same time, these partial adopters have retained the name "differentiated staffing" in referring to their own adaptation of that innovation. As a result, the initial concept of differentiated staffing has been seriously compromised as the result of its perceived divisibility. (Rudalman, 1971).

Divisibility should be regarded as a continuum, and it is possible to modify a particular innovation so that it can be more or less divisible. For example, it is possible to adopt open space school construction as an innovation along a rather broad part of the divisibility continuum ranging from the design and construction of a completely open space school, through the design and building of a school with folding partitions, to the much more limited adaptation of removing a wall between two rooms of an existing building and "trying out" instruction in such a remodeled open space facility.

Divisibility may also be viewed as the percentage of the total number of individuals in a particular organization who must be involved in an innovation. There is some indication that innovations that require group consensus may be more difficult to diffuse than those requiring individual adoption decisions (Barnett, 1964). According to Barnett, divisible in-

vations are those that do not require changes throughout a system as a prerequisite for their adoption. Examples of educational innovations that are divisible both in the partial adoption and individual decision sense would be the use of overhead projectors, or the adoption of supplemental reading materials for the primary grades. On the other hand, the decisions to use bussing to achieve integration, and the decision to consolidate a number of small rural school districts are innovations with low divisibility in the sense that the entire school system (and its community constituency groups) must adopt these innovations simultaneously. Thus, the relative level of divisibility for a particular innovation is also one of the major variables in the adoptability of that innovation since innovations with high divisibility tend to be adopted much more easily.

4. Complexity

Rogers has defined complexity as "the degree to which an innovation is relatively difficult to understand and use" (Rogers, 1962, p. 130). The complexity of a particular innovation may be a composite of the following factors: (1) the number of sub-parts within the innovation, (2) the number of new behaviors or skills that must be learned or understood by the implementor before adoption is possible, or (3) the number of activities necessary for effective maintenance of the innovation over a given period of time. Kivlin (1960) has suggested that there is a negative relationship between rate of adoption and complexity of a particular innovation.

However, it is not the actual complexity of an innovation that is

important to the adoption process, as is the complexity of an innovation as perceived by the reader (Rogers, 1962). Thus, closed-circuit educational t.v., which is extremely complex in terms of design, construction, and operation, is a relatively familiar object to most educators, who tend to view it simply as a mechanism that can be turned on and off and has a channel selector for seeking program alternatives. (Ramey, 1965). Thus, in the initial adoption phase, closed circuit educational television may be perceived by school personnel as far less complicated than a rather simple teaching machine.

An unfortunate consequence of this reliance upon the perceived complexity of an innovation, particularly in the case of closed circuit educational television, is that the programming phase for educational television is an extremely complex and intricate procedure in which experts have only begun to make tentative guesses regarding the relationship between programming and learning. Many educators who are quite comfortable with the idea of adding television as an innovation, find it difficult to effectively integrate existing video-tapes into a comprehensive instructional program. As a result, many of the high quality closed-circuit educational television systems that were installed during the last decade are still being grossly under-utilized, remaining peripheral to the main task of instruction. (Guba, 1965).

5. Communicability

Communicability is the combined effect of a number of characteristics that are inherent within an innovation that make that innovation relatively easy or difficult to explain or demonstrate (Rogers, 1962).

According to Havelock (1969) communicability is related to complexity, the adequacy of packaging and labelling, and to the visibility and demonstrability of its effects. Although complex innovations would naturally be more difficult to explain and therefore would appear to be more difficult to communicate, complexity and communicability are not the same factors. Thus, closed-circuit educational television, a relatively complex innovation was not perceived as being very complex primarily because of the previous experience and familiarity of educators with that media.

6. Compatibility

Compatibility has been defined as "the degree to which an innovation is consistent with existing values and past experiences of the adopters", (Rogers, 1962, p. 126).

In the same way that complexity was largely in the eyes of the beholder, the degree of compatibility of a particular innovation with the various parts of the school system can be determined only on the basis of perceptions of individuals within that school system. It is likely that these perceptions may or may not have any objective validity. As Katz, et. al., (1963), has indicated, the significance and meaning of a particular innovation for one school system may differ completely from its meaning to another school system. The same differences in meaning also hold for different individuals, even within the same school system.

For example, the introduction of the initial teaching alphabet (ITA) as an approach to the introduction of reading to young children has been objected to on the basis of its lack of compatibility with the normal 26 letter English alphabet. Even after adoption, one of the major

complaints from parents and other teachers within the school system is the incompatibility of the ITA alphabet to the regular English alphabet. However, this may also be an example of placing the blame for subsequent weaknesses within the students (e.g., their inability to spell) on a former teacher's method, rather than accusing here directly of incompetence.

Another example illustrating the concept of compatibility might be the acceptance of an innovation (e.g., the use of teacher aides) because it is compatible with a previously accepted innovation (e.g., team teaching). In this case, the adoption of team teaching as a previous innovative organizational structure pointed out clearly to the teachers and administrators involved in that adoption the need for additional roles (i.e., the teacher aide) as a supplemental effort which would enhance the effectiveness of a previous decision (i.e., that to utilize a team teaching approach).

In a number of school systems, high value is placed on the state of innovativeness itself. In these cases, newness, and recency become the scale against which new innovations are often analyzed and interpreted. This emphasis upon innovativeness can be attributed to a number of factors, among them the emergence of a basic change orientation within our present society. Watson has pointed out that the scientific method has played a significant role in bringing about this orientation: "the norms of science problem solving, search for another truth, holding hypotheses tentatively while testing them critically-increasingly pervade other areas of life" (Watson, 1966, p. 560).

7. Cost Factors

Cost factors include initial cost, cost of try out, cost of maintenance, overtime, risk, and trouble to make the investment. Rogers has suggested that the "relative advantage" of an innovation can be determined (at least theoretically) by examining both cost factors and reward factors (to be discussed in the next section) relating to any given innovation. (Rogers, 1962). Thus, by comparing the costs inherent within the adoption of a particular innovation with the rewards that he expects to receive from adopting that innovation, the educator can reach a general assessment of the relative advantage of adopting any given innovation.

The initial costs of any innovation are the human and material resources that are necessary before an innovation can be tried out. Examples of initial cost items are capital outlay, personnel training programs, re-arrangement of facilities, realignment of social structures, and overcoming psychological hurdles (e.g., when changes will be required in the existing value system). (Wilkening, 1952; Barnett, 1953; Katz, et.al., 1961; and Rogers, 1962).

A second cost factor that should be examined prior to the adoption of a new innovation are the financial resources necessary to implement that innovation. An analysis of initial costs will determine what human and material resources are necessary to try out an innovation, while an examination of financial resources focuses primarily upon the question of whether or not financial resources within the organization are available to meet the initial cost needs. Organizational limitations in resources and capital expenditure funds have been cited as significant

factors in determining the gulf between research findings and their application.

Where there is psychological discomfort that will be directly related to the adoption of a new and unfamiliar innovation, this may also contribute significantly to the cost. A wide range of negative sanctions or penalties (e.g., possible social repercussions from the utilization of bussing for school integration) and the fear of these negative sanctions and penalties are included in this category (Barnett, 1953, Chapter 12). When acceptance of a new innovation involves an educator's associates, whether they are his colleagues at school or his neighbors at home, fear of condemnation may lead a teacher or administrator to seriously reconsider his interest in adoption of a particular innovation. Thus, an individual teacher may feel ready to work with integrated classes but the psychological pressure from her colleagues and friends may represent a significantly negative factor.

In the same way, if implementation of a particular innovation requires concentrated and prolonged effort to master a given body of knowledge, techniques or skills, or new approaches to teaching, this can be regarded as a high resource investment. As a result, the innovation will be less diffusable then one which requires less effort. The teacher who for years has effortlessly approached teaching as if it were synonomous with lecturing (telling students about a particular content area) may experience significant difficulty and find it necessary to invest a great amount of time to retrain himself so that he can utilize other approaches to knowledge transmission (e.g., small group discussion, or use of the "learning by discovery" method). Thus, both the complexity of an innova-

tion and the value discrepancies between the innovation and the individual implementor can result in increased psychological discomforts, resulting in higher adoption cost factors.

The impact of crisis on the diffusability of innovations can be considered in terms of cost, since an effect of crisis is the tendency for structures and values systems to become unglued. Such a loosening or ungluing of the traditional value system will relieve some of the psychological pressure that would be brought to bear if that value system were in a state of stability.

Since a relatively weakened organizational structure and value system is easier to modify and will produce fewer psychological discomforts in the process of the modification, crisis type situations can usually be regarded as a factor supporting the introduction of that innovation. Since the advent of a crisis usually reduces the psychological cost factors inherent in introducing the innovation. (Wilkening, Mulford (1969) Sutherland (1959)and Bertrand (1951).

In one sense, the use of the crisis to reduce psychological costs related to the innovation is accomplished by increasing the psychological cost everyone else in the school district has to pay. In other words, instead of just those individuals that are directly associated with an innovation being under intense psychological pressure, the crisis situation places everyone in the social system or organization under intense psychological discomfort and pressure thus reducing their interest in applying specific sanctions or pressure on the innovators. Peck (1969) cites an example of administrators in a conservative school system who

education) in order to distract attention from the implementalism of other innovations.

Even after an innovation has been adopted, there are certain continuing costs which are necessary and varied depending upon the particular innovation. For example, if a closed circuit television arrangement is adopted by a school system, there will be continuing costs in terms of maintenance, additional personnel to provide program development and organizational efforts necessary to utilize the t. v. system. Although these costs may prevent the adoption of a particular innovation, it is far more likely that school system personnel will significantly underestimate the cost needs for maintenance over a continuing period of time because those maintenance needs are much less visible at the time of adoption then are initial purchased and installation costs.

8. Material Rewards

Although material rewards and savings that are the result of innovations are much more visible in the area of business then they are in education, the prospect of material rewards and savings have been utilized as a rationale for introducing some innovations within education. For example, savings to the taxpayer are often sited as one of the primary reasons for regionalization of small rural school districts, and extensive savings on new construction costs are typically sited as one of the reasons for the introduction of the year round school concept.

Most educational innovations, however, are not as clearly related to material rewards. Still, school administrators who are ever conscious

tray all new innovations as either saving the taxpayer money or at least not costing him anymore than he is currently paying. This attempt to assure financial rewards for most school innovations may in the long run be disfunctional, since educators have not provided specific and tangible ways in which the taxpayer can measure the purchasing power of his school related tax dollar.

Certainly, the current movement towards accountability (Lessinger, 1970, McNeill, 1971), as well as the increase of the percentage of defeated school tax issues would certainly seem to indicate that there is an increasing demand for taxpayers for responsiveness on the part of educators on the question of fiscal accountability in education. This appears to be a significant problem for many educators who have tended to regard financial backing for schools as something that is always "just there" when needed.

9. Non-Material Rewards

Positive benefits including anticipated pleasures to be derived from the adoption of an innovation, as well as those conflicts and discomforts that will be avoided by the adoption of a particular innovation are included under the category of non-material rewards and savings. For a teacher, the anticipated psychological pleasure of being more effective in the classroom, as well as being highly regarded by the central office administrators who are promoting a particular innovation, may be important and influential variables in the adoption of new classroom teaching methods. However, these non-material rewards may be effectively counter-balanced by the teacher's expectations that her colleagues and

her students will not approve of her deviation from the "normal" role of the teacher.

Thus, in adopting educational innovations that will significantly change the role of key individuals within the schools such as the teacher, it is very important that a thorough understanding of the non-material rewards (and punishments) as perceived by that teacher are thoroughly understood by the individuals within a school system that are promoting the innovations. Otherwise, it is possible that the teachers expectations of failure will combine with a number of other variables and result in non-adoption of the innovation.

We have discussed a number of characteristics which are for the most part inherent within innovations (scientific status, value loading, divisibility, complexity and communicability) and which are measurable prior to attempting an innovation in a particular school setting. Very little research has been done in this area, but which is available points toward the probability that greater communicability and less complexity are variables that support the adoption of new innovations. Although scientific status, value loading, and divisibility do not seem to be of particular concern to research scholars, their importance as key variables within any innovation still seem to be apparent.

II. KNOWLEDGE AS IT AFFECTS THE RECEIVER: THE ADAPTIVE DEMANDS OF DIFFERENT KINDS OF MESSAGE INPUTS TO THE USER

One very effective way of understanding the special characteristics of an innovation is to analyze the change that it requires of the receiver or implementor of that innovation. Since different types of

of different kinds of innovations, we will attempt to focus upon a number of distinct types of change which roughly fall into the following two categories: how much change is required in the receiver, and (2) what kind of change is required of the receiver.

Within the category of the amount of change required of the receiver, the major question that seems to be raised by researchers is one of expansion: what type of expansion (if any) is required on the part of the receiver who will be implementing a particular innovation? This expansion may be in terms of material objects, knowledge and skills, or in psychological space. If we think of the implementor as occupying a certain psychological and knowledge space at a given point in time, and if we think of this space as representing the outer limits of his knowledge, awareness, understanding, and capability for action, then the involvement of that individual in a new innovation will require an enlargement of some aspect of this space (Lewin, 1951, p. 127).

How Much Change

1. Change In Size and Scope of Operation

Wilkening (1952) has pointed out that innovations often require substantial outlays of capital, labor, land, materials and equipment. Even where the financial resources of an organization are not overtaxed by this particular outlay, the change in magnitude of the operation may have a significant impact upon the life style of the individual involved in that change. For example, in the case of a number of small school districts which decide to consolidate and form one regional district,

the implementation of that regionalization effort may have significant repercussions on the working style of central office school administrators who are suddenly forced to deal with a school budget and operation ten times the size of their previous school district. This sudden and extremely rapid growth could well spell the end of the administrative career for the school administrator who is unable to restructure his previous do-it-yourself, folksy, and personal approach to a small number of teachers and parents.

Another example of an innovation that requires this significant change in the size and scope of operation occurs when teachers move from self-contained classrooms to team teaching arrangements. Where the teacher formerly may have been responsible for all the needs of 30 children she is now responsible for a segment of the needs of perhaps 200 children. Especially in the primary grades, teachers have objected to the use of team teaching on the basis that the children could not identify with more than one adult figure. Perhaps another reason for the reluctance of primary grade teachers to become involved in this teaching is their personal psychological need to function in a relationship in which they provide for all the needs of a given number of students.

Ober, Bentley and Miller (1971) have pointed out that teacher roles have been "studied, defined, restudied, and redefined so thoroughly that there is probably documentation available to support any description of the teacher that one wishes to suggest." (p. 2). Regardless of whether observers are able to describe what the teacher does in definite terms, teachers keep right on "doing their thing" - seemingly without the slightest concern that what they are doing apparently defies definition and

is extremely complex. This fascinating complexity that is the teaching act is, in part at least, responsible for the difficulty in designing training programs that focus upon the acquisition of new skills.

2. Acquiring New Skills

The acquisition of new skills on the part of educators prior to the implementation of a new innovation is often ignored in the hope that it will occur in the normal course of events, or it is deemed sufficient that teachers be away to a workshop supposedly designed to develop those required skills. the most common example of the workshop approach are those that have been conducted by the National Science Foundation to develop skilled teachers for innovations such as PSSC Physics, BSSC Biology, etc. Regardless of whether or not these in-service education opportunities actually prepare the teacher to be a more effective implementor of the innovation, they do instill a certain sense of self-confidence within the teacher that probably acts as a significant psychological support during the crucial implementation phase. However, for the most part, the acquisition of new skills necessary for the adoption of specific innovations is a hit or miss affair in education - partly because there is very little agreement as to what skills are needed in order to effectively implement any given innovation.

3. Changing Goals

Many educational innovations either explicitly or implicitly require that a teacher modify his goals in order to implement the innovation. In a study in which teaching machines were introduced into the

classrooms, teachers were placed in a conflict situation. Their previous goals had been to perform in front of a group of children as a conveyor of facts and their new goal expectations were to be that they would support the efforts of a teaching machine, acting primarily as a helper in the learning process. As a result of this goal conflict and the teacher's interest in retaining her central position within the classroom, the teaching machines were used in such a way as to compromise the major goals for that innovation.

The increase in technological change, the knowledge explosion, the generation gap, and the alienation of youth represent a few other goal-discrepancy areas in need of change.

4. Changing Values and Orientation

Related to the category of specific goal changes are major shifts in the more generalized and pervasive aspects of the life space of the individual who is responsible for implementing a particular innovation. Although the innovation under consideration may not have any explicit value loading, it still can effectively force the receiver to modify and even drastically change certain deeply held values. A number of authors have pointed out the significance of this type of change (e.g., Chin, 1964, p. 141). Miles has stated that "any implementation implying or requiring important value changes in acceptors....will encounter difficulty, since much more than the nature of the innovation itself is at stake" (1964, p. 639).

Meirhenry (1964, p. 243) has pointed out two major examples of changing value areas in education:

> The desegregation of schools is an excellent example of this type of change. The struggle through which almost all Americans are going in this regard indicates the difficulty of making changes which pertain to deep-seated beliefs. To a somewhat lesser degree the place of religion and public education has many of the same overtones of basic value judgments. Changes which involve values probably require a change of what is in the heart as well as what is in the head.

What Kinds of Change

1. Kinds of Change Expected in the Receiver

Within this category, it is necessary to move still further into the psychology of the implementor in order to ascertain the specific types of learning and unlearning processes which may be involved in adoption of an innovation or adaptation of an innovation to a specific local situation. These generalizations seem to be appropriate regardless of the extent to which expansion is required in the specific areas of product, skill, goals, or values. In other words, the various elements within the category labelled "kinds of change" all seem to be applicable to the subcategories included within the general framework "how much" change.

2. Substitution

The most readily acceptable type of innovation is one that is perceived of as a replacement for an existing item that was adopted at some earlier time. For example, the adoption of a new reading program, the adoption of a new biology program, and the switch from student lunches prepared by a school staff to lunchroom service catered by an outside firm all fall into the category of substitution type innovations. Chin, would like to see the heavy influence of substitution within the field

of education so that eventually the public will look forward each year to next year's textbook with the same eagerness that they anticipate changes in automobiles (1964). Meierhenry (1964, p. 422) points out the particular advantage in education of the practice of substitution, since it typically does not involve interpersonal relationships among teachers "so that the person introducing a new practice is not concerned with either antagonism or support from his new colleagues".

Eash (1967) criticizes the widespread use of the substitution process in education (which he refers to as the "displacement model") and states that

> It would be a comfort to harrassed school administrators if the displacement model effortlessly implemented change in classroom practice, minimized, and guaranteed preservation of the integrity of the innovation. Basically, however it is a mechanistic view of the instructional process, conceptualizing it as an assembly line, a conceptualization that overrides the human component and leaves basic problems (of utilization) unresolved.

3. Alteration

A number of educational innovations consist primarily of alterations, changes, or modifications in existing structures rather than complete substitution of parts or elements within that structure. Although one might anticipate that innovations which are simply alterations would have little difficulty being in acceptance, Miles (1964) comments on the relatively slow diffusion of 8 mm. film in education as follows: "the spread of an innovation may be retarded when its potential user regards it as familiar - as only a slightly different version of an existing procedure or practice - and thus not worth the extra call required to shift over to it".

Chin (1964) has pointed out that many innovations that have initially been classified as "alterations" have turned out in the course of time to be what he calls "perturbations and variations", i.e., transient oscillation or disturbances in the overall equilibrium receivers assistance. Havelock (1969) points out that this category of perturbations and variations may include "the many ambitious human relations training programs that seem to awaken people momentarily to an awareness of their interpersonal environment and their impact on others but would seem to leave hardly a trace after six months back on the job." (p. 8-24).

4. Addition Without Changing Old Elements or Patterns

A number of innovations fall into the category of entirely new elements to the receiver. As new elements, these innovations bring with them different kinds of opportunities and problems then those innovations that are considered substitutions or alterations. For example, they do not encounter the typical resistance faced by innovations that must of necessity replace old ways of doing things or long established prejudices. According to Miles (1964) "...other things being equal, innovations which are perceived as threats to existing practice rather than mere additions to it are less likely of acceptance..." (p. 638). And "more generally, innovations which can be added to an existing program without seriously disturbing other parts of it are likely to be adopted."

For example, the adoption of classes for slow learners within a school system that has never before utilized that particular way of classifying youngsters and providing for their learning opportunities is likely

to meet with very little resistance since it is an innovation which is added to an existing school structure. The only disturbance caused by such an innovation would probably be welcomed by most teachers since it would result in the removal of students from their classrooms who would be regarded as "marginal" in the normal classroom setting. Of course, there are a number of other characteristics inherent within the addition of such "special education classes" that also lend themselves to a relatively easy adoption process (e.g., high divisibility, compatibility, etc.).

At the same time those innovations that can be considered entirely new are, for the most part, entirely unfamiliar to the receivers, who may, as a result of his unfamiliarity, find great difficulty in assimilating those new innovations. In addition, there may be a general defensiveness and hostility on the part of school personnel to innovations that are completely unfamiliar, different, and strange.

Finally, one problem that concerns the researchers is whether or not the concept of "addition" can be isolated as a pure case from a research standard. For example, although the previously cited case of adding a special education class or a series of special education classes on the surface appears to be a clear cut case of addition, it may be that upon closer examination, teachers within the school system have been providing for the special needs of children classified as "special education students" without their being a separate organizational structure to handle them. In this case, it may be more accurate to classify the adoption of special education classes as some type of organizational restructuring, substitution, or other classification of implementation activity

took place. At the same time, this preoccupation with a search for "pure" research cases that can form to their theoretical categories is exactly the type of preoccupation on the part of researchers that practitioners could care less about.

5. Restructuring

The term "restructuring" is typically utilized to refer to those changes in the material or psychological structure of the receiving organization or individual. In terms of material or physical changes, restructuring could simply mean a rearrangement of working space. Thus, modification in the size and composition of classes, the location in which various subjects are taught and the actual physical layout of a school building would qualify as restructuring innovation. In addition, modifications in the curriculum could involve a rearrangement and re-emphasis of resources in the process of restructuring (Meirhenry, 1964).

Psychologically, restructuring is quite similar to our earlier discussions under "goal changing and value and orientation changing". According to Lewin (1951, p. 72-84) cognitive restructuring is a major aspect in human development and he defined it as "the differentiation of previously undifferentiated regions".

Another example that falls into the classification of restructuring within schools would be team teaching and the introduction of departmentalization in elementary schools (Meirhenry, 1964). Miles has concluded (1964, p. 638) "it does not seem automatically clear that substantial structural innovations, such as changes in teacher role designations, diffuse at lower rates than etnologically based ones".

6. Eliminating Old Behavior

Some innovations are simply changes that eliminate existing practices and behaviors. Although this may seem at first glance like a rather simplistic categorization, and although most of the research on this particular type of innovation has focused upon areas such as smoking, drug taking, crime, and overeating, there are some specific applications to the educational setting. For example, putting an end to corporal punishment in schools may be a significant change and, as such, a radical innovation for many educators who have for years relied upon their physical prowess over students to control the education process. Actually, it is quite obvious that simply requesting or even demanding that teachers eliminate corporal punishment will not necessarily bring about the desired change in their behavior, and even in those cases where it does, the psychological cost to the teacher of such a change may be far more significant then is initially anticipated. It is probably far easier to take an innovation such as the elimination of capital punishment and redesign the implementation of that innovation so that it falls into another category (e.g., substitution, alteration, or restructuring) by providing the teacher who relies heavily upon corporal punishment with some alternative means of eliciting compliance from students.

7. Reinforcement of Old Behavior

The last categorization of changes expected in the receiver is very likely the easiest of those innovations to adopt since it consists primarily of communicating knowledge which reinforces what the receiver is

already doing. Thus, reinforcement of old behavior with confirming knowledge reinforces past decisions and highlights the wisdom of prior adoptions. As Brickell has pointed out, those findings of research that serve as support for the experiences and folk wisdom of the practitioner are typically well received by those practitioners. These observations are confirmed in the social psychological research by Festinger (1954) and Brohm and Cohen, (1962) who point out that people often seek out information that will confirm or reinforce previous actions so that they can resolve lingering doubts about irrevocable past decisions.

For example, a teacher who already had been regarding herself as a resource for student self-directed learning and had proceeded to work with students for years under this arrangement would probably regard the introduction of "learning by discovery" methods of teaching as a reinforcement of her previous behavior.

A significant problem with this particular type of reinforcement, however, is the individual who selectively perceives some element of a new innovation as reinforcing an old style of behavior and utilizes that selected perception as a means for not examining the new innovation any further. And since the effective adoption of a new innovation is very much dependent upon the perceptions of the implementor, it is quite likely that such misinterpretation of an innovation as reinforcing an old behavior could effectively compromise the actual implementation of the real innovation Thus, a science teacher who is presented with a new science curriculum may see within that new curriculum many familiar elements, and this familiarity can be utilized to reinforce previous in-

CHAPTER VI

LINKING AGENT ROLES

Any consideration of the variables influential in changing education at the elementary and secondary level must include a discussion of the special linking roles that are provided by the wide range of change agents currently emerging in the educational scene. Havelock (as cited in Eidell and Kitchell, 1968) refers to those individuals as persons who are "charged with the responsibility of retrieving basic or applied knowledge, deriving practical implications from it, and distributing it to people who need it and can use it".

Among the various linking agent roles that will be discussed are: the conveyor (an agent who receives knowledge from expert sources and passes it on to non-expert users); the consultant (a knowledgeable source contracted directly by an information user); the trainer; the leader (an inside, rather than outside agent); and the innovator himself. In addition, this chapter will be concerned with other types of individual in education who are responsible for insuring that knowledge about new educational innovations gets into the hands of educational practitioners.

There are a number of well known typologies of linking roles that have emerged in the literature within the past several decades. For example, Clark and Guba (1965) have suggested a number of interrelated roles which effectively tie in with the various stages in a research, development and diffusion sequence. Under the category of development, Clark and Guba have included specific roles such as inventing, packaging, and evaluating; under the diffusion category they have suggested that inform-

ing, demonstrating, training, servicing, and nurturing of research and development roles including: quality controllers, social bookkeepers, design engineers, and researchers who concentrate on diffusion. Having examined these and a number of other suggested typologies, it is obvious that there is a great deal of overlap and, as a result, a detailed listing of all suggested typoligies would simply result in confusion for the reader. Therefore, this paper will focus primarily upon Havelock's (1969) typology since it seems to cover most effectively and comprehensively all of the diverse linking roles suggested by researchers in the field. Even though Havelock's typology of linking roles will be used as the basic framework for this chapter, the work of other researchers will also be included where appropriate within each of the selected categories. In those cases where other researchers have suggested typological categories that do not quite fit within the general framework selected for this chapter, those special cases will also be defined.

It should be noted that all of the researchers who have attempted to classify the various linking roles understand thoroughly that their typology is primarily an attempt to conceptually organize "ideal" linking role types, and the resultant forced-fit with the reality of the public schools may at times be a bit evasive to the educational practitioner. For the most part, this is due to the face that real, live change agents must play a wide variety of these linking roles simultaneously if they are going to be effective in their job. Nevertheless, this typological separation of ideal roles can be extremely useful for the educational practitioner in thinking through the discrete tasks and roles that must be considered prior to an effective orchestration of all of

education.

1. The Conveyor

The conveyor is a change agent who simply receives new knowledge from expert sources and passes that knowledge onto the non-expert potential users of the knowledge. (Havelock, 1967). The concept of linkage through a conveyor (or a carrier, as Jung, (1967) refers to it), is a linkage category that is utilized rather broadly within education as well as within other fields. The conveyor's role is typically what people envision when they think about special roles for the dissemination of innovations. For the most part, this conveyor type of function is not valued highly by either researchers or practitioners, and as a result, the conveyor role presents problems to those individuals who would like to fill that role exclusively.

In its pure form, the concept of the conveyor as a linking function suggests that the individual filling that role passes information on to the receiver without substantially modifying the information. In reality, it is questionable whether anyone functioning in a linking role operates in such a limited way. (Wilkening, 1956). In education, the textbook salesman is a good example of a conveyor linking agent, but even the textbook salesman repeatedly steps out of the role of simple conveyor by informing school personnel of what kinds of adoptions other school systems have made, by explaining in detail a variety of special applications of the new textbook material that appear unique to the local situation, and by bringing along a variety of sample materials that will encourage adoption of that particular textbook series. In addition, the textbook sales

man sometimes has other resource personnel that he can call on from within the publishing firm who will act as supplemental resources, assisting a local school system in training teachers to use the new material. Similar role expansion on the part of salesmen occurs in other fields such as medicine, where the pharmaceutical salesman may give doctors free samples and literature of various sorts of drugs, as well as informing the doctor of the drugs that his colleagues in the next town are currently using (Bauer, 1966).

The types of knowledge that potentially can be passed on to the practitioner include wide variety of items such as research data, information gleaned from research, prepackaged curricula materials that are derived from scientific knowledge (e.g., PSSC Physics), printed materials (e.g., trade publications from the textbook companies), or training programs (e.g., supplemental to specific textbook adoptions). The information passed on might be in the form of specific supplies, products, services or practices that were originally based, upon or in some way derived from, scientific knowledge. Although the conveyor supposedly transfers knowledge from the research area into practice, the reality of the role and the heavier orientation toward the practitioner almost guarantees that the conveyor structures his interactions so that he is oriented primarily toward the practitioner. Because of this practitioner orientation, most conveyors learn very quickly that utilization of research is not a very effective means of encouraging local adoption within a school system, and at times can ever have a negative impact. As a result, references to the role of research in developing the particular innovation

For the most part in education, there is little distinction between the pure role of conveyor and the more complicated needs of an educational disseminator and diffuser (Clark and Hopkins, 1966) and, as a result, the image of the disseminator is often interpreted by most practitioners and researchers as an errand boy or a runner. Znaniecki (1940, p. 150) reinforces this misconception when he says that the disseminator, "while important socially (to develop support for scholars), is a scientifically unproductive role." Helpin (1964) succintly summarizes the dilemma as follows:

> I can only writhe as I watch the fatuous and condenscending attitude of both the scientist and educational practitioner toward prospective middlemen. Even the advocates of the middle man imply that the middle man should serve as a type of editorial assistant, at a status level only slightly above one of the average secretaries and certainly below that of the research technician". (p. 198).

In spite of this generally lower status of a conveyor type linker, within the area of science as well as industry there are conveyors who appear to have escaped this stigma. A scientific expert or advisor to the government is for the most part a highly thought of and well respected member of both the scientific and the governmental community (Moulin, 1962; and Leiserson, 1965). Perhaps one of the major reasons for the success of scientific linking agents is the fact that many of these scientific knowledge linkers occupied rather significant and highly visible positions within the scientific community immediately prior to their governmental work as conveyors of scientific knowledge into the governmental arena.

In the area of industry, systems engineers seem to have effectively created a linking career for themselves which allows basic researchers

and developmental engineers to continue to pursue their separate research interests without management interference. (Morton, 1964; Havelock and Benne, 1969). This group of systems engineers has been so successful that top industrial management often selects future industrial leaders from among the ranks of systems engineers.

2. The Consultant

The consultant has been referred to as a facilitator, objective observer, and specialist in the diagnosis of needs, the identification of resources, and the retrieval of information from expert sources (Havelock, 1969). For the most part, the consultant tells how to do something, in contrast to the conveyor who tells what something is about (Havelock, 1967; June, 1967). Since the basic assumption for the role of consultant is that only the client can determine what is best for him, assistance should be provided in the form of collaboration (Thelen, 1967) consultation (Havelock, 1967) or encouragement (see Bowman, 1959 for a discussion of motivation builders). Boehm (1956) points out that it is up to the client to take the initiative in requesting consultant services, and, once those services have been provided, the client can make a decision as to whether or not he will accept the help that has been given.

There are five general characteristics that distinguish the consultants role from that of conveyor: (1) the client initiates a request for consultant services; (2) the consultant-client relationship is temporary and focused on a specific problem; (3) the consultant is typically from a different professional discipline then the client; (4) the consultant

usually operates in an advisory capacity and assumes no responsibility f... implementation of his advice; and (5) the consultant has no administrative relationship to the client (Binderman, 1959).

During the past two decades, the National Training Laboratory has developed a slightly different concept of consultation, that of the "change agent". (Lippitt, et. al., 1958). A "change agent" consultant is flexible in terms of what advice he gives, depending upon client self-diagnosis and problem definition. Primary emphasis is often placed on assistance in client diagnosis through implementation of self-surveys for the client (Mann, 1962) by helping the client conduct his own self survey, and by providing the client with problem formulation and problem solving skills. In a sense, this "change agent" consultant is an active participant, a collaborator, and at times a conveyor of knowledge about the process of change.

Although some refinements have been made in the definition of what a consultant actually is, there is still a wide discrepancy among the definitions utilized by various researchers. For example, the phrase consultant has been used to describe any type of advice giver (Fairweath... 1967 and his "social action consultant"); it has been used to describe roles that are peripheral to the mainstream of decision making and the term has been used by Schein and Benis (1965B) merely as a means for distinguishing outside change agents (a "consultant model") from variou... other change agent roles that are operates from within the client syste...

A number of researchers have identified other roles that are simil... to that of consultant as used here but slightly different in that they

acting directly as knowledge providers. For example, the role of expediator has been described by Reiff and Reissman (1964) as one who "sees to it that service is given" to the client. In a sense, the expeditor would be a partisan advocate on behalf of the client in helping that client to obtain needed services. Perhaps the closest role within the schools to this particular category would be the Teachers Association consultant who enters into a school system specifically as an advocate of the members of a Teachers Association.

Another category that has been referred to in the research is that of "mediator", a role that has emerged primarily in the legal profession, but that has seen recent usage within the educational arena. A basic assumption underlying the role of mediator is that the various parties involved in the introduction of innovations are partisan and potential adversaries. Thus, when an objective appeal is needed to a supposedly impartial third party over some conflict-laden situation, a mediator is brought in to assist in resolving the conflict. For the most part, such mediators have been utilized in school board-teacher conflicts regarding proposed school system changes. However, there is a growing indication that such mediator services will be needed in areas such as instructional improvement, introduction of innovations, and relationships between teachers and school administrators.

3. The Trainer

The role of trainer or teacher is distinguishable from the roles of conveyors and consultants primarily because the trainer's goal is based upon the assumption that underlies much of formal education: that a body

of knowledge can be conveyed and stored for future use by use of extended or intensive learning experiences, usually in a specialized learning environment (e.g., a school, institution, university, etc.) (Havelock, 1969). Thus, the trainer is often considered to be an expert who can convey a given body of knowledge to a group of clients, but, for the most part, the trainer does not convey this knowledge to the clients in the client's work setting. For example, within a school district, training sessions are usually held in some central location within the school district, at a nearby university, or in isolated conference facilities designed specifically for that purpose. In those cases where training sessions are held within a classroom, the work session is typically restructured significantly (e.g., students are usually missing).

Another major factor in distinguishing the trainer from the conveyor is that the trainer has a great deal more control over the learning environment. Typically, trainers used within a school system are in some position of authority over the trainees; either hierarchically above them within the school system (e.g., a curriculum supervisor), or outside the system but able to impose certain types of sanctions that neither consultants or conveyors are able to impose (in-service credits, university grades, certificates, and letters of recommendation).

The most common trainer role in the field of education is the university professor who is supposedly an authority on the implementation of various innovations within school systems. However, the primary difficulty in utilizing professors as trainers seems to be their removal from the realities of the practitioner's world. For the most part, in education the training of educators is seen as something that occurs before

the neophyte educators are sent off to join a school system, and, for the most part, university graduates are regarded as finished products. Although great emphasis is also given to encouraging educators to return to the halls of academia for advanced training, graduate degrees, and further specialization, the vast majority of university professors are not interested in developing effective in-service education programs that are linked closely to the on the job needs of teachers and administrators. To the extent that client needs are ignored, trainers have seriously compromised their potential impact as linking agents. (Herriman, 1971).

4. The Leader

While the conveyor, the consultant, and for the most part the trainer, are typically outsiders in the sense that they are not members of the client's organization, there are a number of linkage roles which function primarily within the client's organization. These various linking roles within the clients organization (e.g., within a public school system) are classified generally within the title of "leader".

A number of researchers have pointed out that those persons who are formally designated as leaders within an organization (e.g., school administrators, curriculum supervisors, master teachers, etc.) have a significant impact on the adoption of new innovations (Carlson, 1954; and Richland, 1965). Although some researchers believe that these various leader roles act primarily as a funnel through which information comes to the actual implementors, other researchers (Chesler, 1963) have pointed out that school administrators also function effectively as "facilitators

and supporters" of the teachers efforts to learn about and use educational innovations.

Lewin (1952) has pointed out that a leader often acts as a "gate-keeper", an individual that can control information flow in and out of a particular organization primarily on the basis of his influential position vis a vis a specific set of rules, norms, and organizational procedures. Although such a gate-keeping position may be occupied by the formally designated leader within a school system, official power on the organizational chart may be misleading since the gate-keeper function is often performed by an individual who is not in official power, but occupies an extremely strategic position. Thus, in many schools, the school secretary is the most influential gate-keeper since she has access to information from the principal, the teachers, the students, and even the parents and also to a large extent controls information flow to and from the formally designated leader within the school - the principal.

Katz (1957) identifies the "opinion leader" as still another significant internal leadership role that is different from both the formal leader and the gate-keeper. The opinion leader is typically an individual who repeatedly influences other members of his own group on a number of different innovative issues, although there is still some disagreement within the literature as to how opinion leaders emerge and why their opinions are influential (Rogers, 1962), and what communication processes are utilized in acquiring information from the opinion leaders.

Despite the fact that opinion leaders are present in virtually all social systems and peer groups, these opinion leaders do not always en-

courage the adoption of new innovations. Some researchers have pointed out that opinion leadership is probably more influential in informally structured organizations (e.g., farming, medicine and the academic world) then it is in formerly constituted organizations such as hospitals, governmental departments, school systems. As most school administrators know, it is desirable to have strong supporters within the faculty who can be designated as faculty opinion leaders.

Katz (1957) has pointed out that opinion leaders serve three primary purposes for clients: (1) information, where the opinion leader functions as a conveyor, (2) the opinion leader functions as a standard or model to follow (wherein the opinion leader establishes reference group norms), and (3) the opinion leader provides social support for decisions regarding the adoption of innovations. Since these functions appear to be quite similar to those previously discussed under the sections on conveyors and consultants, the major distinction between opinion leaders and those previously discussed categories rests in the opinion leader's vocation within the client organization. Thus, the primary function of the opinion leader may be as a legitimatizer for new innovations.

5. The Innovator

The innovator is the first person within the organization to implement a new innovation (Rogers, 1962, p. 193), and although the innovator may be an emerging opinion leader (perhaps through the success of his innovation), there are other distinctions that should be noted between the innovator and the opinion leader. For example, innovators often

serve as an innovation testing-service for the real opinion leader, under circumstances where the opinion leader is reluctant to lend his reputation to an untested innovation. Under this arrangement, the real opinion leader is able to observe both the effectiveness of the innovator and the receptivity to his innovative attempts by other persons within the organizational structure, prior to actually committing himself to the innovation. However, there has been some question regarding the extent to which opinion leaders and innovators actually form such close ties, and it has been suggested by Menzel and Katz (1956) that an inverse correlation existed between medical innovators (adopters of new medicine) medical opinion leadership.

By actively promoting a particular innovation, both within his organization and outside of that organization, the innovator may function as still another type of linking agent. The importance of this role within the large bureaucratic organization, where success does not depend entirely upon the measure of profit, is quite significant. Schon (1963) has pointed out that even in industry, product champions can perform missionary work for their own inventions. However, it is more common to consider the roles of the inventor: the product champion (an individual who recognizes the value of the invention), believes in it, and devotes his energy to selling it; and the role of patron: an individual in a high power and/or financial position who has been persuaded by the product champion to provide the necessary risk capitol for implementation o the invention. (Schon, 1963). The major factor that separates the prod champion from the conveyor, discussed earlier, appears to be the total commitment and involvement of an individual in a particular innovation.

A number of individuals in education both in and outside the public school structures have become well known and closely linked to specific innovations (e.g., John Goodlad and non-gradedness, Dwight Allen and micro-teaching, and Lloyd Trump and "the Trump Plan").

6. The Defender

Although previously discussed linkage roles have all occupied positive orientations toward the various innovations under consideration, the defender sometimes acts as a barrier to new innovation, though he also may support change in other instances. Since most new ideas and innovations bring with them a number of problems and difficulties, there are always appropriate reasons for not adopting a particular innovation, and these reasons are discovered and pointed out by the defender, who acts as a champion of the client against the innovation.

In relating the issue of dogmatism to change, Rokeach (1960, p. 107) stated the following:

> There is a strong tendency in psychology to describe and account for change with the help of such concepts as flexibility, independence, non-conformity, open-mindedness, psychological health, reality orientation, and so on. On the other hand resistance to changes described are explained in terms of conformity, rigidity, fixation, compulsiveness, closed-mindedness, extremeness of belief, and tolerance of ambiguity, etc. Such a way of thinking places a positive value of change and a negative value on non-change. We do not think that this way of making the distinction is very helpful because it does not leave room for the possibility that there may be different varieties of change and resistance to change. For example, there is a difference between rigidity and stability, between intellectual conviction and dogmatic conviction, between a party line change and a more genuine change.
>
> We must avoid associating the open mind with change and the closed mind with non-change. A more defensible view is that persons with relative closed systems may sometimes manifest change and sometimes fixedness for basically the same reasons.

These reasons have been variously described as conformity, other directiveness-identification with authority, ego defense, compartmentalization, isolation, opportunism, and expediency. Conversely, change and non-change in open systems may result equally from a correct appraisal of reality, from intellectual conviction rather than dogmatic conviction, and from independent rather than subservience to conformity pressures.

Defenders may function effectively in a number of ways including the following: (1) sensitizing clients to important value concerns (e.g., in Flouridization, the involuntary medication issue; (2) by causing a rediagnosis of needs (e.g., Upton Sinclair, on the need for pure food and drug legislation); (3) by mobilizing public opinion regarding certain products and services (e.g., Nader on automobile safety); and (4) by developing a higher level of sophistication and selectivity on the part of the public in evaluating items such as quality, value, and relevance of innovations (e.g., the role of the Consumers Union in assessing new products).

There have been several attempts to develop "defender" type roles within urban ghettos utilizing indigenous personnel (Kahn, et. al., 1966; and Réiff and Reissman, 1964). In addition, there have recently emerged a number of student advocacy systems which essentially act as "defenders" of students vis a vis the teachers and administrators within the school system. (Thomas, 1971).

7. Knowledge Builders as Linkers

A variety of different knowledge builders can serve effectively as linking agents between the research arena and the working world of the practitioner. As has been noted earlier, a number of reputable scientist functioned as gate-keepers to the world of science by temporarily workin

within the governmental structure as interpreters of the latest scientific developments to governmental personnel. In addition, research scholars have functioned as "supreme generalists" by developing conceptual and theoretical information that eventually is disseminated through college textbooks, classroom teaching in a university, and even in public school curricular materials (Carter and Silberman, 1965).

Still other scholars have focused upon questions which clarify basic human values and directions, and in the same way as the "supreme generalists", the writings of these philosophers eventually reach the hands of practitioners. Finally, the semi-scholarly role of the "futurist" (e.g., Tofflin's Future Shock) is gradually emerging as an influential force in information linkage. Although for the most part these future planners have influenced governmental agencies, university personnel, and R and D Laboratories, at least one public school system has already implemented an elementary curriculum course on futuristics.

In addition to scholars, a wide range of applied researchers, developers, and engineers function effectively as linking agents between research and practice. Applied researchers are generally oriented toward both research and application, and most of them have some difficulty fulfilling the demands of both of their client groups. Clark and Hopkins (1966) have listed a number of activities that fall into this developmental category, such as (1) inventing solutions to operating problems, (2) developing engineering packages and programs for educational use, and (3) testing and evaluating solutions and programs.

Another linking specialist is the R and D manager who must both attract high calibre research talent, and at the same time justify his lab-

oratory efforts in terms of product quality. Although the educational conception of R and D management is not as fully developed as that in industry, a recent review by Sieber points out the value of "directors" of educational research bureaus and "research coordinators" within schools of education (1966).

Finally, engineers have emerged in the industrial world as individuals with broad technical and scientific training who are useful in a wide range of industrial roles (e.g., as developers, conveyors, consultants, and applied researchers). Educational engineering has been borrowed from the successful industrial model; and a number of newly established regional laboratories, ERIC Centers, Title III Centers and IDEA Centers have resulted in a proliferation of roles that fit into the engineering, developmental, and linking categories. (John Hopkins, 1966).

8. Practitioners as Linkers

We have, for the most part, used the term practitioner and client interchangeably (as the individual who works with the linking agent in implementing a particular innovation), the practitioner (e.g., the physician, the school administrator, or the teacher) can also be viewed of as a linking agent when their clients (the patient, the student) are thought of as the ultimate user of the innovation. Thus, in this category we will view the practitioner as the linking agent between the new innovations that he will implement and his client group - in this case the students.

In education, there have been recent attempts to organize "student centered" classrooms which reinforce the emerging image of a teacher as a linking agent (conveyor, consultant, the trainer). In addition, there

have been a number of instances where administrator's function in a service capacity vis a vis teachers rather then in the more traditionally perceived role of hierarchical superordinate over the subordinate teachers (Peck, 1969).

9. The User as Linker

In order for the user to function as his own linker, he must obtain or possess the following three items: (1) knowledge of resources, (2) access to those resources, and (3) an ability to diagnose his own needs. To achieve all of these items seem possible, but, at the same time, it is quite probable that for some time to come, a major part of the population will not be fully equipped with regard to all areas of need.

CHAPTER VII

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